COTTON

JUNE, SERVING THE 1938

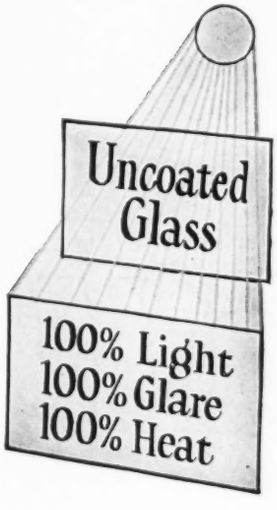
Textile Industries

HOW TO MAKE YOUR MILL A MORE COMFORTABLE PLACE TO WORK

No-Glare Window Coating Eliminates All of the Glare and 15% of the Heat

Your employees deserve the *extra comfort* and your mill deserves the *extra efficiency* that will result from coating your windows with No-Glare. The sky-blue pigment eliminates glare and filters out the heat producing rays of the sun yet floods the mill with soft diffused light.

No-Glare costs less than ½c per sq. ft. and is easy to apply. It may be sprayed or brushed on either side of the glass and will stay on until removed with a stiff brush and warm water. Since 1922 it has dependably served many hundreds of textile mills. If you are not already a No-Glare user we urge its adoption in your mill.

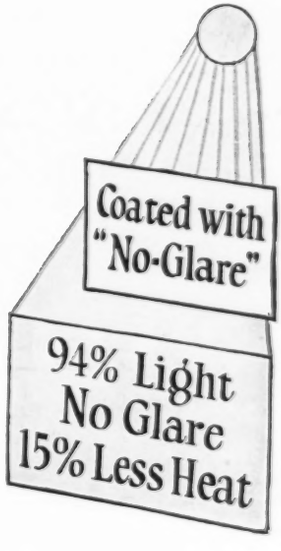


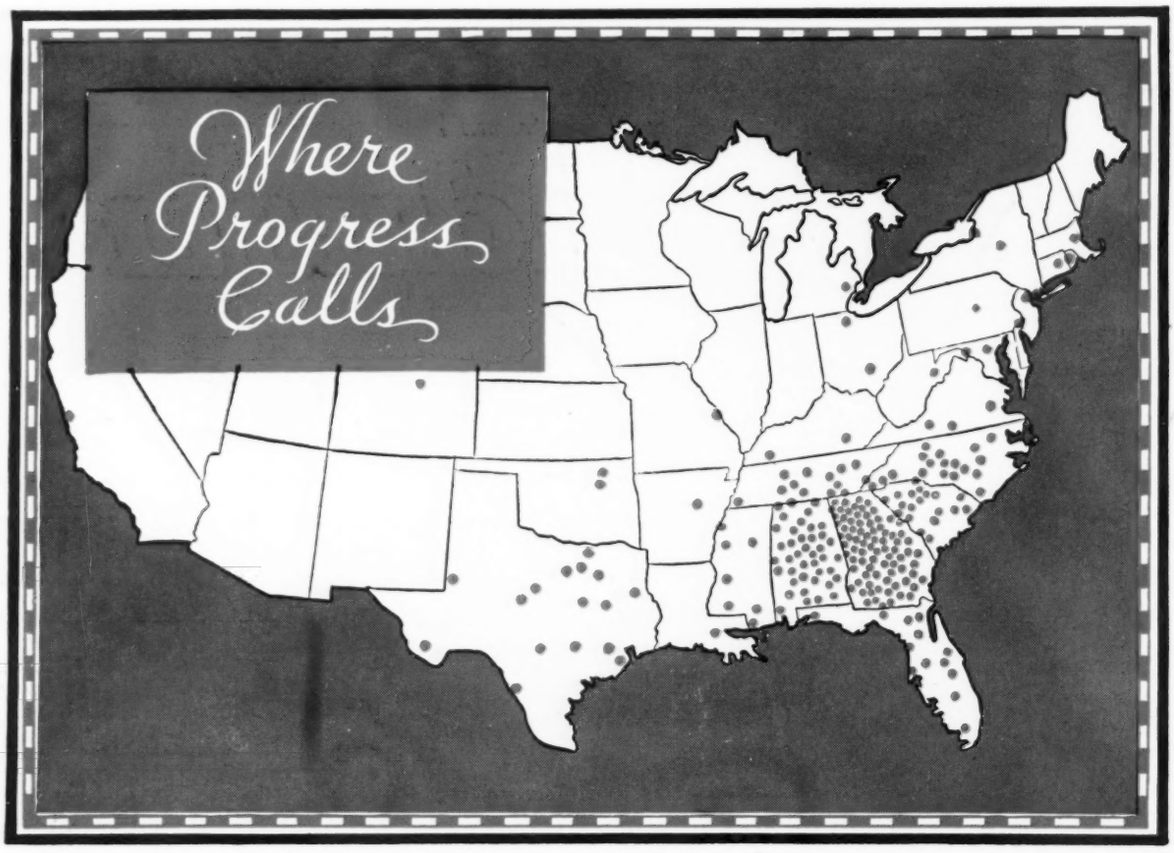
SKYCO NoGlare

Single Gallons	$3.50 per gal.
Five Gal. Pails	3.25 per gal.
Ten Gal. Pails	3.00 per gal
55 Gal. Drums	2.75 per gal.
Coverage	750 sq. ft. per gal.

THE SKYBRYTE CO.

CLEVELAND, OHIO





OVER a broad front of 25 states, Robert and Company, as Architects and Engineers, have been helping the forward march of industry for 21 years. This map shows two hundred communities in which we have executed some two thousand projects of varied types involving the expenditure of more than $300,000,000. This wide experience, and our thorough knowledge of local situations, permit us to operate anywhere in the South with a sure confidence, born of previous contacts and activity.

Consultation involves no obligation

ROBERT AND COMPANY
INCORPORATED
LAWRENCE WOOD ROBERT, JR., *President*
Architects and Engineers
ATLANTA, GA.

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By Changing from

This 18″ Beam to This 20″ Beam

On 500 Looms One Mill

Saved Over $5000 a Year on a $4000 Investment

Other Mills are Making Similar Changes to Larger Yarn Beams — Some Show More and Others Less Savings — All Show a Good Profit — If You Want to Know What Larger Yarn Beams Would Do for Your Mill Read the Special Story in Our Latest Cotton Chats and

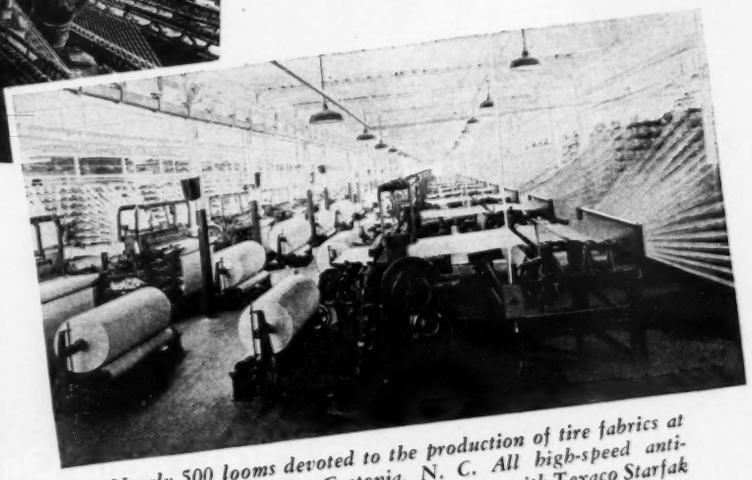
Talk It Over with a Draper Man

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

Firestone MILLS ARE Strong FOR STARFAK

The many irregular, sometimes jerky, motions of textile machinery make possible a great saving in power when positively and continuously lubricated. Texaco Starfak meets these needs exactly, keeping the polished surfaces of high-speed anti-friction bearings in prime condition.



Nearly 500 looms devoted to the production of tire fabrics at the Firestone Mills, Gastonia, N. C. All high-speed anti-friction bearings here are kept anti-friction with Texaco Starfak Grease No. 2.

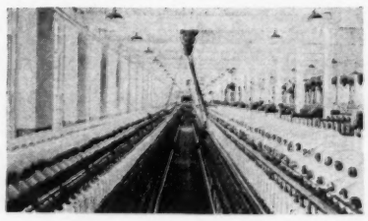
THIS BIG MILL at Gastonia, N. C., is devoted to the production of cotton fabrics for Firestone Tires. Equipped with hundreds of machines from pickers to finishing, every high-speed anti-friction bearing throughout the plant is lubricated with Texaco Starfak Grease . . . and has been for years!

Especially developed for small, high-speed anti-friction bearings, Texaco Starfak provides an astonishing reduction in starting and running torque. It forms a stable, durable film that seals out dirt and lint.

Texaco Starfak Grease does not entrain air to become spongy . . . nor does prolonged use under high speeds and temperatures affect its lubricating qualities or permit it to break down.

Trained lubrication engineers are available for consultation on the selection and application of Texaco Starfak and other specialized lubricants. Prompt deliveries assured through 2108 warehouse plants throughout the United States.

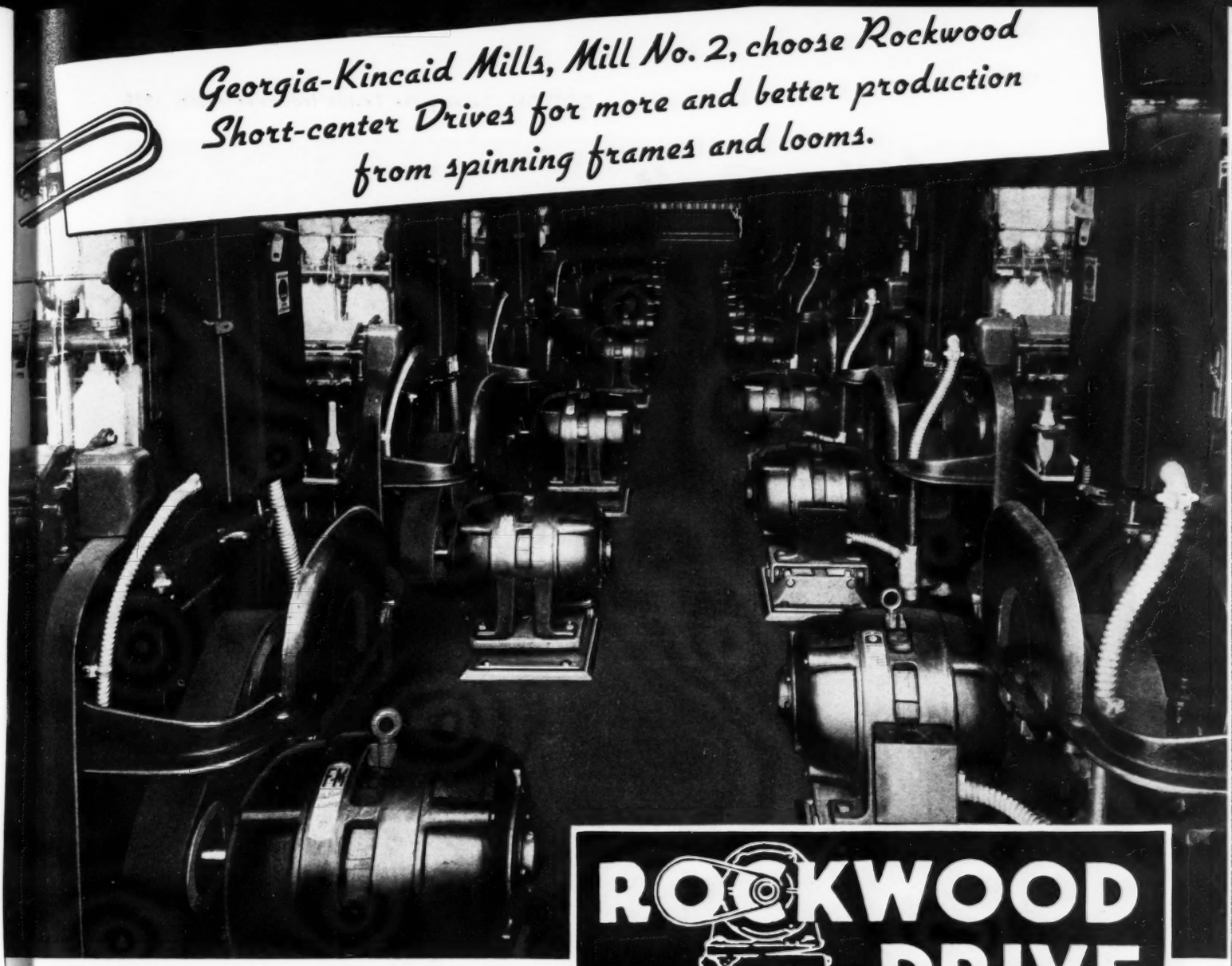
The Texas Company, 135 East 42nd Street, New York City.



As a result of intensive laboratory research in close cooperation with the makers of anti-friction bearings, Texaco Starfak has come through tests lasting more than 1,800 hours without deterioration or material change in its characteristics.

TEXACO Starfak GREASE

Georgia-Kincaid Mills, Mill No. 2, choose Rockwood Short-center Drives for more and better production from spinning frames and looms.



ROCKWOOD PIVOTED MOTOR DRIVE

Floor type Rockwood Spinning Frame Bases—selected for existing spinning frames. Note neat, orderly appearance. Motors well off the floor. Rockwood makes three types of Special Spinning Frame Drives—floor, shelf, vertical—to fit new or old frames.

Increases machine performance

Reduces maintenance

Gives a better quality of work

Lower costs

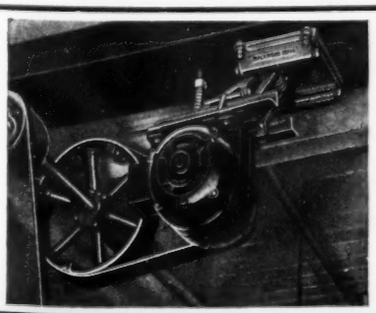
These pictures show some of the ROCKWOOD SHORT CENTER DRIVES included in modernization of another of the South's great cotton mills, the Georgia-Kincaid Mills, Mill No. 2, Griffin, Georgia. Thousands of installations of Rockwood Drives in textile mills show that they operate driven machines ***better and more dependably***—with ***steadier speeds***—and give ***more consistent and more profitable production.***

Rockwood Spinning Frame Drives as well as all other Rockwood Drives are adjustable—to use any desired part of the weight of the motor to maintain uniform, ***automatically controlled*** belt tension. Thus, regardless of ever present and unavoidable changes in belt length, full and dependable power is always available to each driven machine and ***uniform speed is assured at all times.***

IF YOU ARE PLANNING TO BUY NEW MACHINERY—OR TO CHANGE YOUR PRESENT MACHINES IT WILL PAY YOU TO HAVE A ROCKWOOD ENGINEER CALL. ROCKWOOD DRIVE PERFORMANCE IS THE PROVEN STANDARD FOR TEXTILE PLANT MACHINERY.

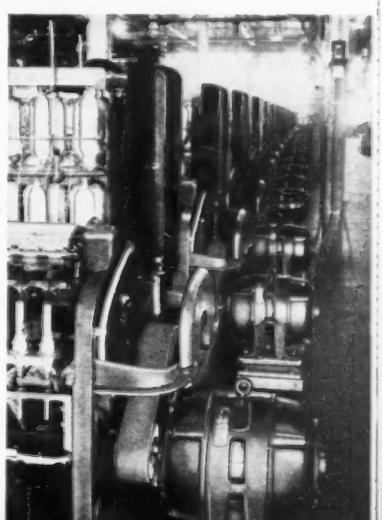
Rockwood Manufacturing Company

1800 English Avenue, Indianapolis, Indiana



At left: One of the Rockwood ceiling type Lineshaft Drives that drive the looms. The 25 h.p. motors drive 60 looms, 30 on floor above and 30 on floor below—a very good and successful installation. Rockwood Lineshaft Drives are an engineering ideal, better than chains, better than V-belts—better than *any other kind of drive* for lineshafts. They give you full and dependable power with the *minimum* belt tension—to handle the *maximum* load, without belt slip.

It will pay you to have a Rockwood engineer consult about your installations.



Still "Tops" FOR HIGH SEEABILITY

COOPER HEWITT MERCURY LIGHTING

Take it from the operators whose eyesight is the key to textile plant efficiency—the sharp, clean-cut clarity of sight under Cooper Hewitt lamps still ranks as "tops" for high seeability.

These long-tube light sources are "naturals" for getting light down around the warp and into the harness. Shadows are virtually non-existent. Broken ends stand out sharply. What's more—there's a sense of coolness about Cooper Hewitt light that makes for physical as well as visual comfort.

Now, too, with the *new* Cooper Hewitt* lamps "high seeability" lighting is less expensive than ever before. Plants where *costs are known down to the last penny* are installing Cooper Hewitts right now—as a means of spreading slim modernization budgets *wisely* as well as *widely* throughout the plant.

Why not discuss the possibilities of similar gains in your own plant with a representative who knows the economics as well as the engineering of modern textile plant lighting? General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

**The new Cooper Hewitt starts instantly . . . hangs horizontally . . . gives the same output from 22% less wattage than previous types. It provides a soft, detail-revealing light, ideal for non-fatiguing seeing.*

GENERAL ELECTRIC VAPOR LAMP COMPANY

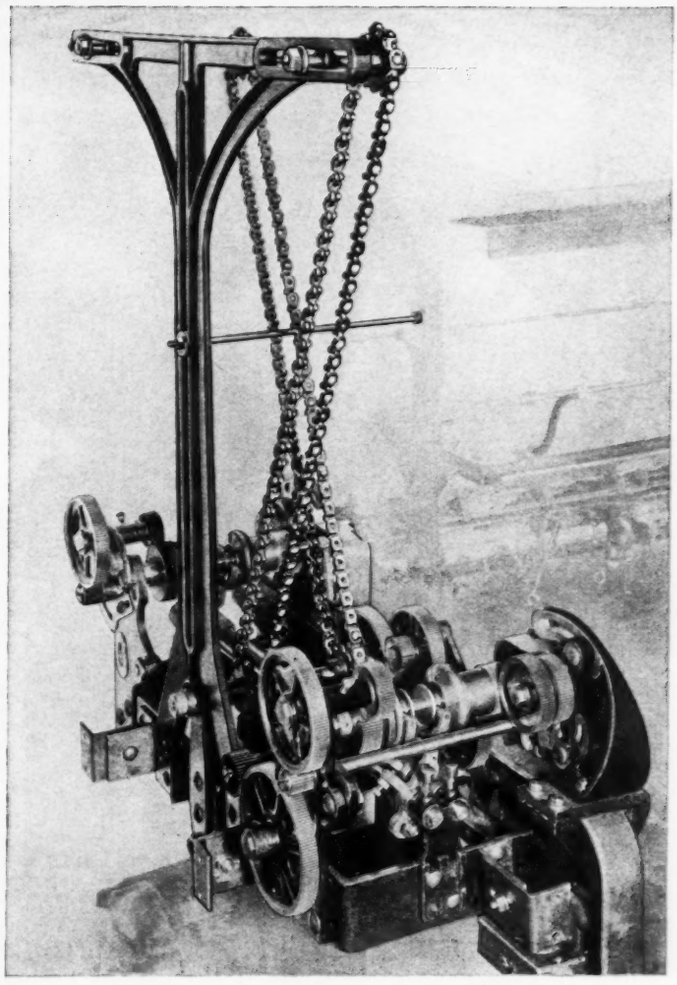
90EC

The Triplex Himalaya Yarn Attachment

(PATENTED)

FOR SPINNING FRAMES

SPECIAL YARN EFFECTS FOR UNUSUAL FABRICS



Designed and built in collaboration with fine goods mills on spun rayon to produce particular fabrics.

●

Will make yarns that cannot be reproduced on other attachments.

●

One—two—or three-count yarns from a single size of roving.

●

Two-count Himalaya yarn, or a complete line of flake and nub yarns.

●

Arrangement of rolls and gear range to give wide flexibility and adjustment.

●

All gearing fully guarded for protection against accident or injury.

SEND FOR OUR NEW CIRCULAR

FURNISHED ONLY BY:

WHITIN MACHINE WORKS

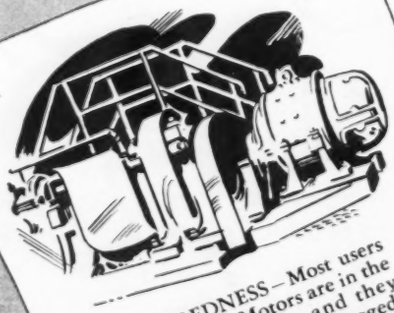
WHITINSVILLE, MASSACHUSETTS, U. S. A.

CHARLOTTE, N. C. ATLANTA, GA.

THE *Experience of Users*

INSULATION—Plant Engineers constantly emphasize the importance of insulation. Reliance meets their demands from the standpoints of quantity, quality, and thoroughness in method.

PROTECTION—Interest in decreased maintenance has stimulated the development of enclosed fan-cooled and splash-proof motors.



RUGGEDNESS—Most users of Reliance Motors are in the heavy-duty class and they make it plain that ruggedness is a big factor in keeping motors on the job in their plants.

INTERCHANGEABILITY—Loss of interchangeability places a burden on those who must maintain stocks of spare parts. No change is made at Reliance until after careful consideration of how the user will be affected.

It's doubtful if any electric motor engineer is more widely known among motor users than Mr. MacCutcheon. His contacts have been numerous because he has followed the Reliance idea of getting information on the spot where things happen. The electrical industry has called on him frequently to serve in its association activities.

GUIDES RELIANCE DESIGN . . .

In 1914, thirty-five operating engineers helped Reliance start an idea in motor design from which industry has greatly benefited. These men, responsible for the operation of thousands of motors, had seen revealed in their repair shops the weak spots of motors of many makes and types « « « This group showed us where extra strength and quality were needed to meet the demands of their work. Where other motors had failed, Reliance Motors were improved. The plan of thus getting more of the user's experience into motor design met with such hearty approval that it was made fundamental at Reliance. « « « It has been my job to interpret the ideas of the men who have contributed so freely from their experience . . . to interpret, not merely in terms of so much copper and steel but from the standpoint of probable results in service. All this has been a healthy stimulus. We are grateful for what such cooperation has done to put greater value into Reliance Motors.

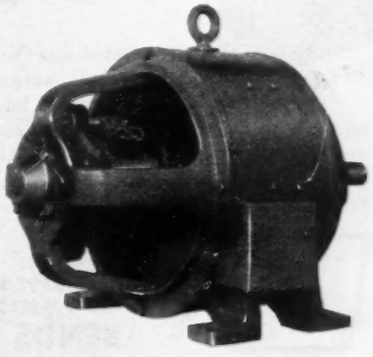
A. M. MacCutcheon
Engineering Vice President

First representative of the Reliance idea of getting more of the user's experience into motor design is the Type T D-c. Motor. Not only in basic design but in the many improvements which have been added, these motors reflect the majority opinon of engineers in industry who have cooperated in their development.

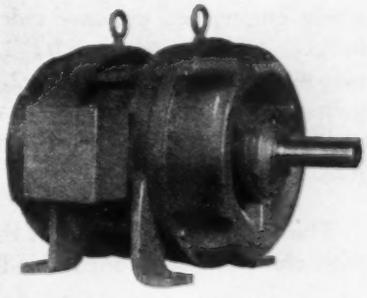
Type AA Induction Motors likewise typify in original design, insulation practice and protective features, the results of close scrutiny and recommendations of users —men who follow the service records of motors closely and find the reasons for good or bad performance.

Industry has used a lot of these rugged motors, worked them hard, and found that they stand the pace. The results have proved the wisdom of getting more of the user's experience into motor design.

RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 IVANHOE ROAD • CLEVELAND, OHIO
Branches: BIRMINGHAM • BOSTON • BUFFALO • CHICAGO • CINCINNATI
DETROIT • GREENVILLE, S. C. • NEW YORK • PHILADELPHIA • PITTSBURGH
Representatives In Other Principal Cities



Ball-bearing Type T Heavy-duty Reliance Motor for direct current.



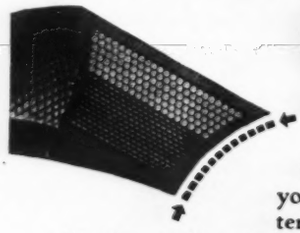
Type AA Squirrel-cage Reliance Induction Motor with ball-bearings.

RELIANCE A-C D-C MOTORS

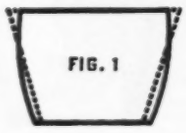
Here is Plain Proof

that V-Belts NEED the

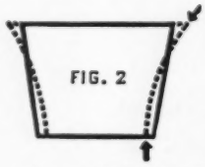
Concave Side



Bend any V-belt and here is what you will notice: The top is under tension and becomes narrower. The bottom, under compression, *widens*. These stresses distort a *straight-sided* V-belt into a shape that does not fit the sheave groove—as shown in Figure 1, below. Note the out-bulge of the sides.

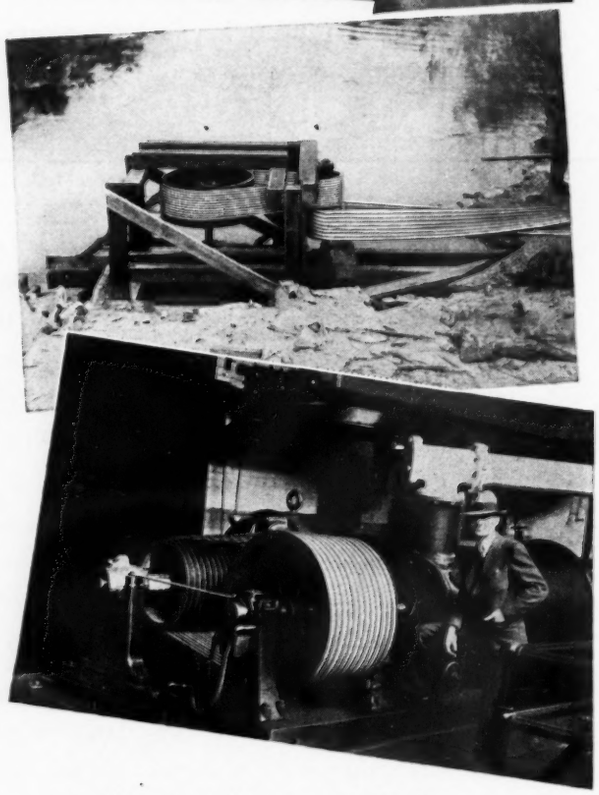


WHAT HAPPENS WHEN A V-BELT BENDS



Now look at Figure 2. Here you see that the same *shape change* merely *straightens* the precisely engineered concave side. There is no side-bulge. *Two* savings result: 1. You get *uniform* side-wall wear, *longer life!* 2. The full side-wall grip on the pulley insures against slippage on sudden load increases—a saving both in belts and *power*.

The Gates Vulco Rope is the only V-Belt built with the patented concave side.



Engineering Offices and Stocks in All Large Industrial Centers.

THE GATES RUBBER COMPANY

Factory Branches

Terminal Building
Hoboken, N. J.

1524 So. Western Ave.
Chicago

741 Warehouse St.
Los Angeles

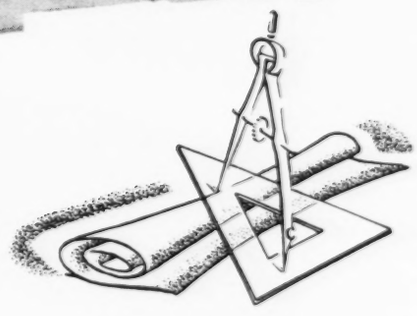
2213 Griffin Street, Dallas

999 South Broadway, Denver

GATES VULCO ROPE DRIVES

NO MODERNIZATION IS COMPLETE WITHOUT

Saco-Lowell
UNIFIED FIBRE CONTROL



Replacing old machinery with new is not modernization . . . even though some degree of improvement is effected.

Complete modernization means a drastic change . . a change that will substantially reduce costs, increase efficiency, and improve quality. UNIFIED FIBRE CONTROL produces that kind of modernization.

With UNIFIED FIBRE CONTROL only 3 roving operations are necessary . . not five. This means less machinery, and less processing. Likewise it means a material saving in power, upkeep, and operating costs. But more important, with less manipulation of the cotton, uniformity is improved. There is also a more effective and satisfactory control of the fibres during all the drafting operations.

Our engineers would like to cooperate with you whenever you are ready to discuss modernization plans.

SACO-LOWELL SHOPS

60 Batterymarch Street, Boston, Mass.

Charlotte, N. C. . Greenville, S. C. . Atlanta, Ga.

But, after all, the most convincing proof of Tuffer quality is the statement from an old customer who says,
"The new Tuffer Card Clothing is on the machine, looks fine, and certainly holds, as we had an accident during which the cloth was held as tight as possible without breaking, neither did it slip nor show signs of strain."

This Tug-of-War shows the strain TUFFER CARD CLOTHING can withstand

Giant jaws hold and struggle to break samples from each lot of Tuffer Card Clothing to be sure it will be many times the necessary strength when applied to your machines. This tug-of-war takes 1300 pounds with teeth set—1800 pounds without teeth set in foundation—to break Tuffer Card Clothing, and the most severe strain on your machines seldom exceeds 350 pounds.

Put your Card Room in tip-top condition with Tuffer Card Clothing for economical and satisfactory performance.

TUFFER CARD CLOTHING

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

Branch Offices: Philadelphia, Dallas

Southern Plant: 244 Forsythe St., Atlanta

Canadian Agents: Colwool Accessories, Ltd., Toronto 2, Canada

Products: Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards—Napper Clothing, Brush Clothing, Strickles, Emery Fillets, Top Flats Recovered and extra sets loaned at all plants—Lickerins and Garnett Cylinders from 4 to 30 Inches and Metallic Card Breasts Rewired at Southern Plant—Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles

GETTING THE MOST FROM WINDING

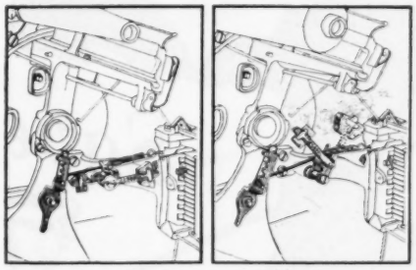
Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

NEW DIFFERENTIAL PRESSURE ADJUSTER and CONNECTING ROD (No. 50 Winder)

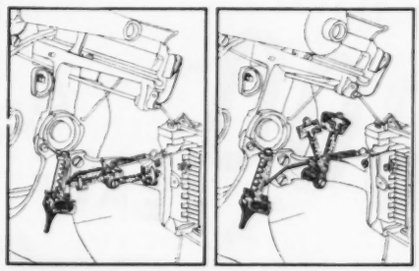
We have recently developed, for silk mills, a Differential Pressure Adjuster with seven positions, instead of four as with the standard Adjuster. Its purpose is to provide better control and greater variation of tension and pressure when winding packages of small diameter.

Cones of silk are usually small in diameter, so there is only a slight change in the position of the traverse frame back as the package builds up — and a correspondingly small arc in which the levers will operate to release tension and pressure and compensate for the increase in winding speed.

The top four positions of the new Adjuster give the same results as the four on the standard device. The three new positions cause quicker release of tension and pressure for the same movement of the traverse frame back, which is in proper proportion to the increase in yarn speed.



These sketches illustrate what happens with the standard 4-position Adjuster. With the connecting rod in the lowest position, the tension and pressure levers move only part way from horizontal to vertical — showing that only part of the tension and pressure has been released as the winding speed has increased.



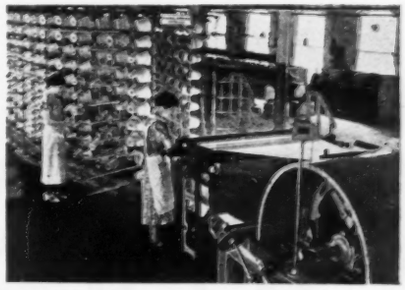
By connecting to the lowest new position, the levers move all the way from horizontal to vertical when winding a package that is only 4½" in base diameter. This is twice as far as when the standard Adjuster is used — and better control of pressure and tension is maintained throughout the building of the package.

It is important for all winding to have the levers start in the horizontal or just above the horizontal position. Starting below the horizontal or dead center position causes the levers to bind and prevents the free movement of the traverse frame; starting them too high takes off tension and pressure which might be necessary to obtain a firm foundation when winding on the bare cone or tube. The table below shows how the amount of tension and pressure is reduced as the levers go through the full 90° arc.

10°	98%	50°	64%
20°	94%	60°	50%
30°	87%	70°	34%
40°	77%	80°	17%
45°	70%	90°	0%

The new Adjuster obviates the necessity of using the Auxiliary Levers for Tension or Pressure and makes it possible for mills to build softer packages of uniform density — by starting with more tension and pressure and ending with less than previously used.

When installing the new Adjuster, a new and slightly longer connecting rod is required. Both parts can be applied easily without any other change in the machine.



DRESSING WOOLEN WARP YARNS FROM CONES

The advantages of the magazine cone creel which are familiar to most weavers of cotton, rayon and other fibres, are also being obtained for dressing woolen warps.

The use of the magazine cone creel on this operation permits the utilization of the modern high speed dresser reel as shown in the accompanying photograph, illustrating a recent installation with latest type equipment. Overend delivery from the cone makes possible increase in speed of warp dressing from the present level of from 30 to 40 Y.P.M. to 175 to 200 Y.P.M., with uniform tension on every end, and tremendously improved resultant warps.

The yarn is kept in single end form on individual cones, rather than doubled up to 48 ends on jack spools, resulting in fewer knots, and insuring fresh yarn at all times, greatly reducing stock in process. Through the magazine form of the creel, continuous operation of the dresser reel is maintained, as it is not necessary to stop for creeling.

The coning operation performed on high speed Universal winders allows for inspection of the yarn when desirable through the application of adequate slubbing devices.

The 5-section warp in the photograph contains 440 ends of 2¾ run wool. The time required for dressing is 37 minutes, which coincides with the time it takes to beam off the warp. Two dresser reels are used with each warping unit, and after dressing one complete warp, the second reel is placed in position for dressing the next warp, while the first is beamed. All lost time is eliminated, and continuous operation assured.

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

THESE MILLS SAVED

MONEY WITH TAYLOR AUTOMATIC CONTROL

Read in these figures the stories of reduced costs, increased profits and more uniformly finished goods. And then let Taylor Engineers help you find an answer to the question: "HOW CAN WE SAVE MORE MONEY IN OUR MILL?"

AMAZING FIGURES! They shout to the whole industry that the Taylor System of Slasher Control—completely engineered—has definitely proved its right to be considered essential to economical mill production.

The figures displayed here speak of control systems, each designed and installed to meet specific needs of an individual mill. They have nothing to do with the installation of single instruments here and there in the slasher room. They result only from completely engineered systems built into and unified with the slashing process, and regulating every step.

These economies come from (1) correct preparation and application of the size...(2) from savings in size materials...(3) from use of less cotton...(4) from savings on steam consumption and coal...(5) from fewer loom stoppages...(6) from elimination of "seconds" among finished goods. The total more than pays for the Taylor System in a short time, often in less than a year.

With costs of production bringing wrinkles to industry today, you cannot afford to put off an investigation of Taylor Slasher Control and its application to your needs.

Use this Experience

There are plenty of textile mills in the United States today that can tell stories of large economies, faster production of more uniform finished goods and larger net profits as results of the installation of Taylor Slashing Control. Taylor engineers today have the experience of nearly fifteen years in the designing and installing of these systems. Their success is the result of applying this experience to the specific requirements of each individual mill.

Whether the slashing room is equipped with the standard two-cylinder slasher or the new Saco-Lowell High Speed Slasher, Taylor Control puts slashing operation on a new low-cost basis and adds greatly to the uniform conditioning of the yarn that goes into finished goods. Ask a Taylor Representative for information on Taylor Systems of Slasher Control and its application to your mill, or write direct to Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, Eng.

What Engineered Taylor Temperature MEANS TO YOU

1. Taylor Textile Engineers survey your mill thoroughly.

2. They consider your installation an individual problem, recommending instruments and steam and size distribution to fit your specific needs.

3. Taylor Textile Engineers install complete systems to assure definite savings and profits.

4. They remain on the job to supervise the installation of every Taylor instrument.

5. Taylor Textile Engineers properly balance slasher room operating conditions and help train personnel in operating procedure to insure continuous efficiency.

Taylor

Indicating Recording Controlling

TEMPERATURE, PRESSURE, FLOW *and* **LEVEL INSTRUMENTS**

USE DU PONT CUSTOM SERVICE

to CHECK *Your Bleaching Results and Costs*

CUSTOM SERVICE is personal attention to your particular mill conditions and requirements—a careful study of your problems—practical suggestions for using du Pont Peroxides.

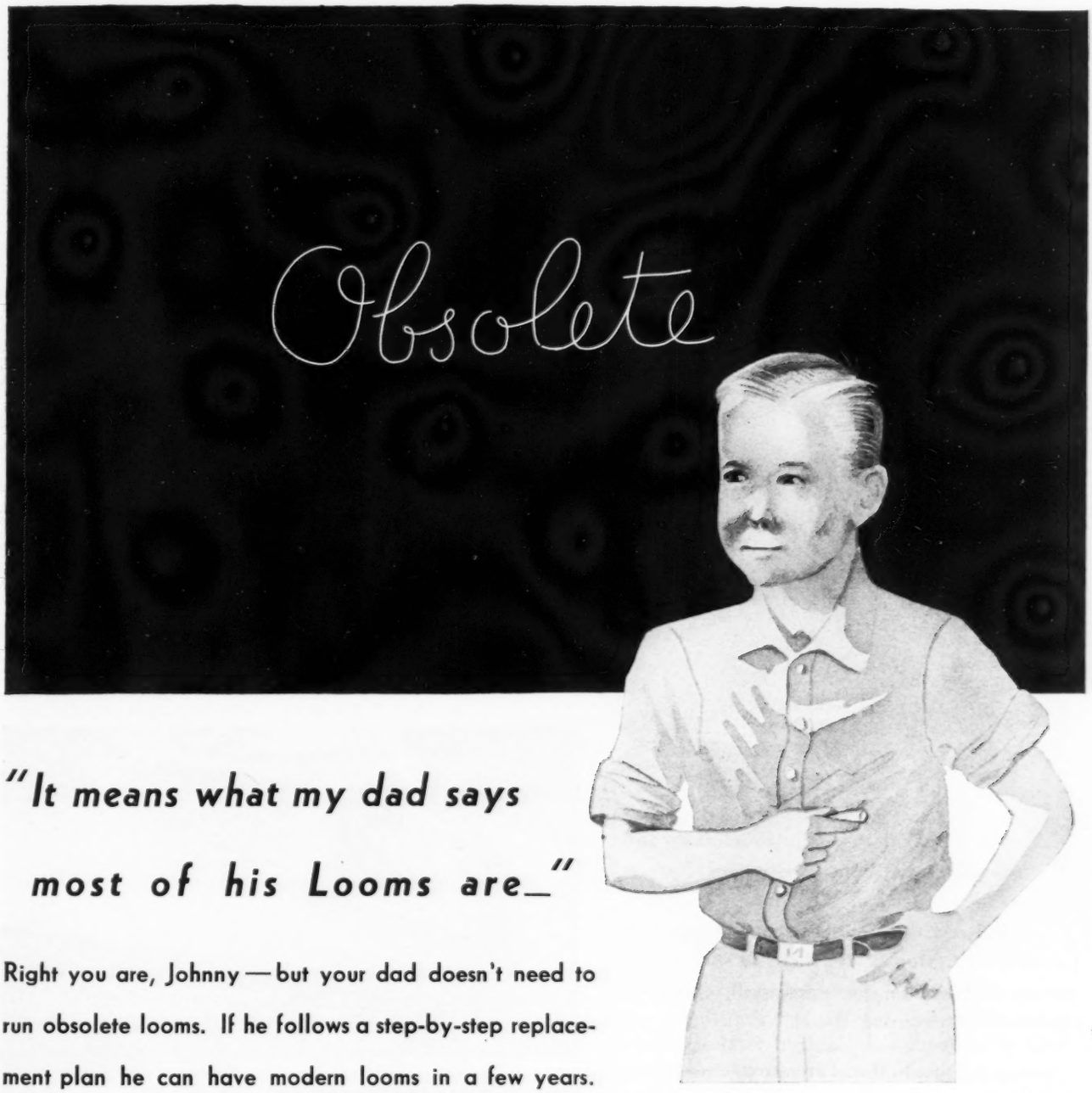
Have one of our men come in for a thorough discussion of your problems. Through his practical mill experience, he can give you a complete report, checked by our laboratory. If your costs can be cut and quality improved, this report will show you how to do so.

For this CUSTOM SERVICE, write or call our Nearest District Office.

DU PONT
REG. U. S. PAT. OFF.

The R. & H. Chemicals Department
E. I. DU PONT DE NEMOURS & COMPANY, INC.
Wilmington, Delaware

District Sales Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco



"It means what my dad says most of his Looms are_"

Right you are, Johnny — but your dad doesn't need to run obsolete looms. If he follows a step-by-step replacement plan he can have modern looms in a few years.

The first thing he should do is to find out which of his looms are the laggards. He should then plan to replace them, 10% each year—so that in ten years he will have looms as up to date as any mill in the country. If he makes sure to start with the *worst* 10%, he will get more than the average benefits from his first investment. That, Johnny, is part of what is called "good management."

P. S. We will be glad to help your dad find out which are the laggards if he will write to us.

CROMPTON & KNOWLES LOOM WORKS

ALLENTOWN, PA. PHILADELPHIA, PA. CHARLOTTE, N. C. **WORCESTER** CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

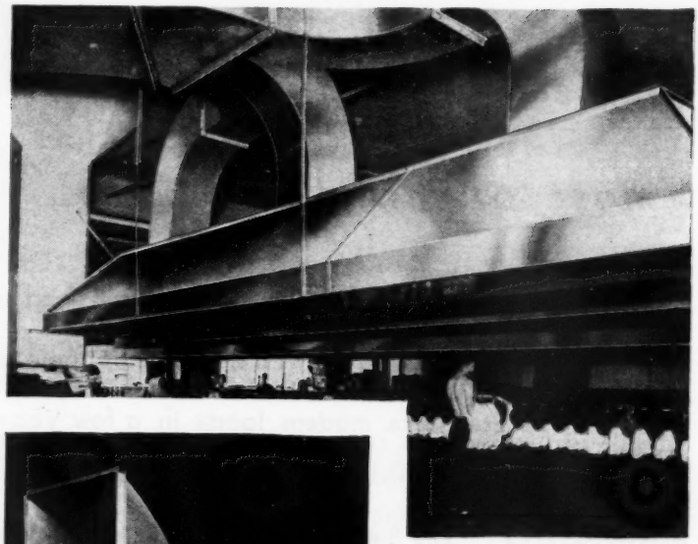
WHAT ARE YOU PAYING...

...for Rust Drip from Hoods?

Watch out for rust-drip. From rusty and corroded ventilating hoods and ducts it falls into dye vats. That may cost plenty. And once this trouble starts, no temporary patchwork can stop it. Yet there's a sure way to prevent such trouble *starting:* Install ventilating equipment of enduring Monel.

Strong and tough, Monel also stoutly resists corrosion from acid-laden fumes. And Monel does not rust. Furthermore, it is easy to fabricate into intricate forms and shapes, and assures years of trouble-free service. Frequent replacements are eliminated, and costly repairs cut to a minimum.

Experienced textile men, through the use of Monel, save many a dollar in dyeing, bleaching and finishing operations: Monel has long been the preferred metal for dyeing machines, dye sticks, reels, tank linings, covered rolls, utensils, table tops, trucks, dryer linings, moistening boxes, emulsion troughs, and other equipment. Write for further information on Monel. Address:



These Monel hoods and ducts are installed over skein dyeing machines at the plant of Maljna & Co., New York, N. Y. The completed job will take about 5 tons of Monel sheet.

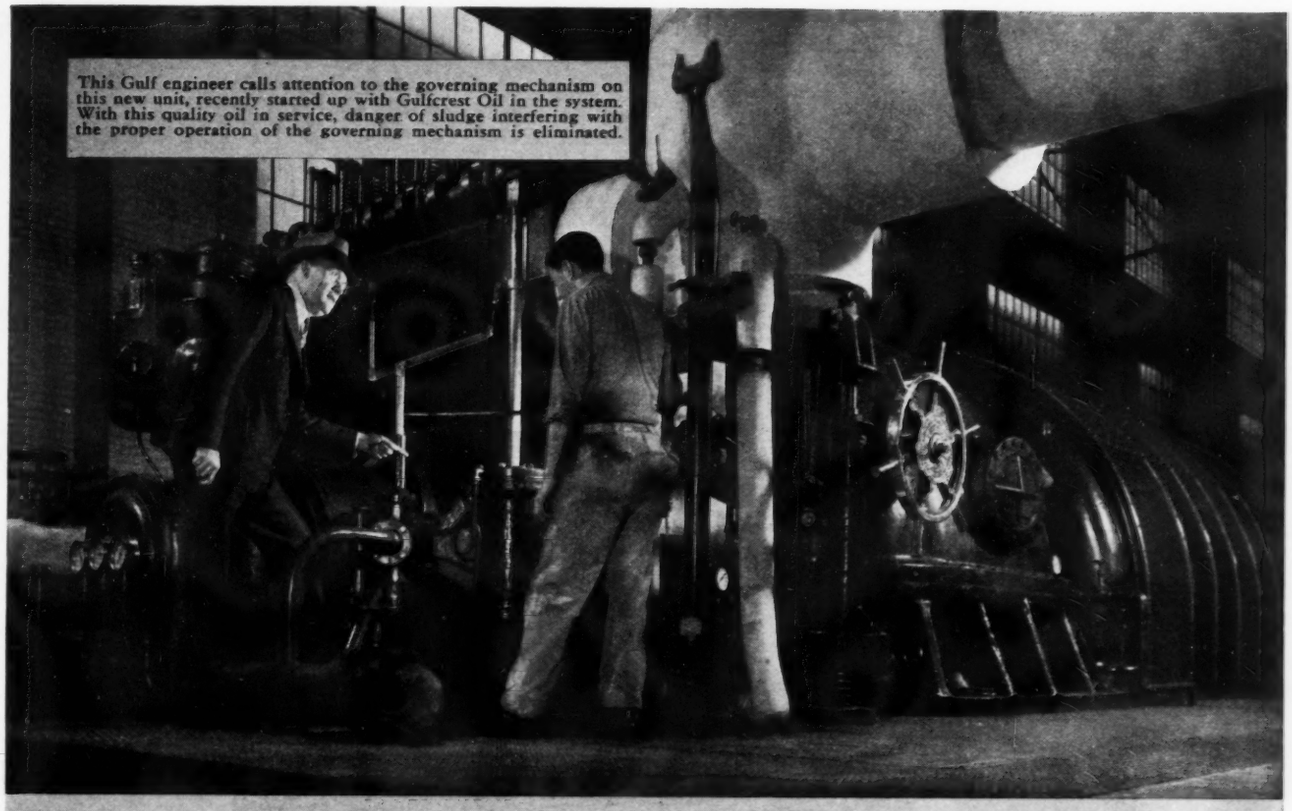
• • •

(Left) This photograph shows fabrication of duct work at shop of Benjamin Low, 523 E. 13th St., New York, N. Y. Monel, though corrosion-resistant and tough, is easy to fabricate by all of the usual methods, including welding.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York, N. Y.

MONEL

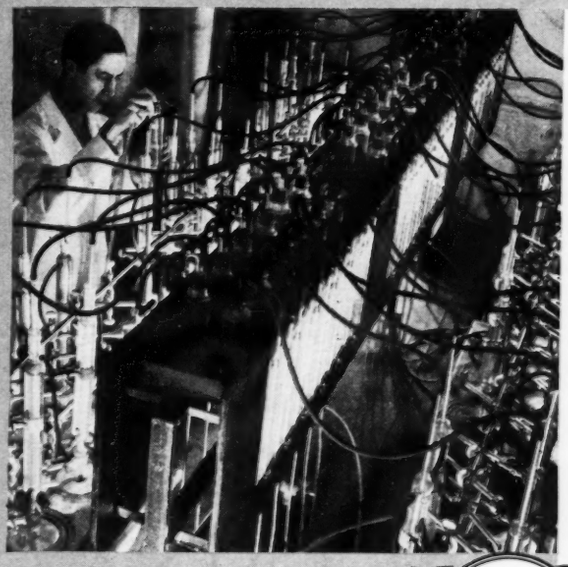
"Monel" is a registered trade-mark of The International Nickel Company, Inc., which is applied to a nickel alloy containing approximately two-thirds nickel and one-third copper.



This Gulf engineer calls attention to the governing mechanism on this new unit, recently started up with Gulfcrest Oil in the system. With this quality oil in service, danger of sludge interfering with the proper operation of the governing mechanism is eliminated.

GULFCREST OIL

...the quality leader for Steam Turbines



This intricate apparatus is used in the Gulf Research Laboratory to check the findings of Gulf's organic and physical chemists with regard to the life of Gulfcrest Oil in service.

HERE is one important reason for the remarkable stability of Gulfcrest Oil—this quality turbine oil has been *refined and purified by Gulf's exclusive Alchlor process.*

By applying this famous process to an already highly refined oil, as high as 20% of its volume—consisting of undesirable hydrocarbons and other impurities which cause oxidation and sludge formation—may be removed.

No wonder this turbine oil is making such outstanding records in plants from Maine to Texas! Power plant engineers find that after years of service Gulfcrest shows far less deterioration than any oil they have ever used.

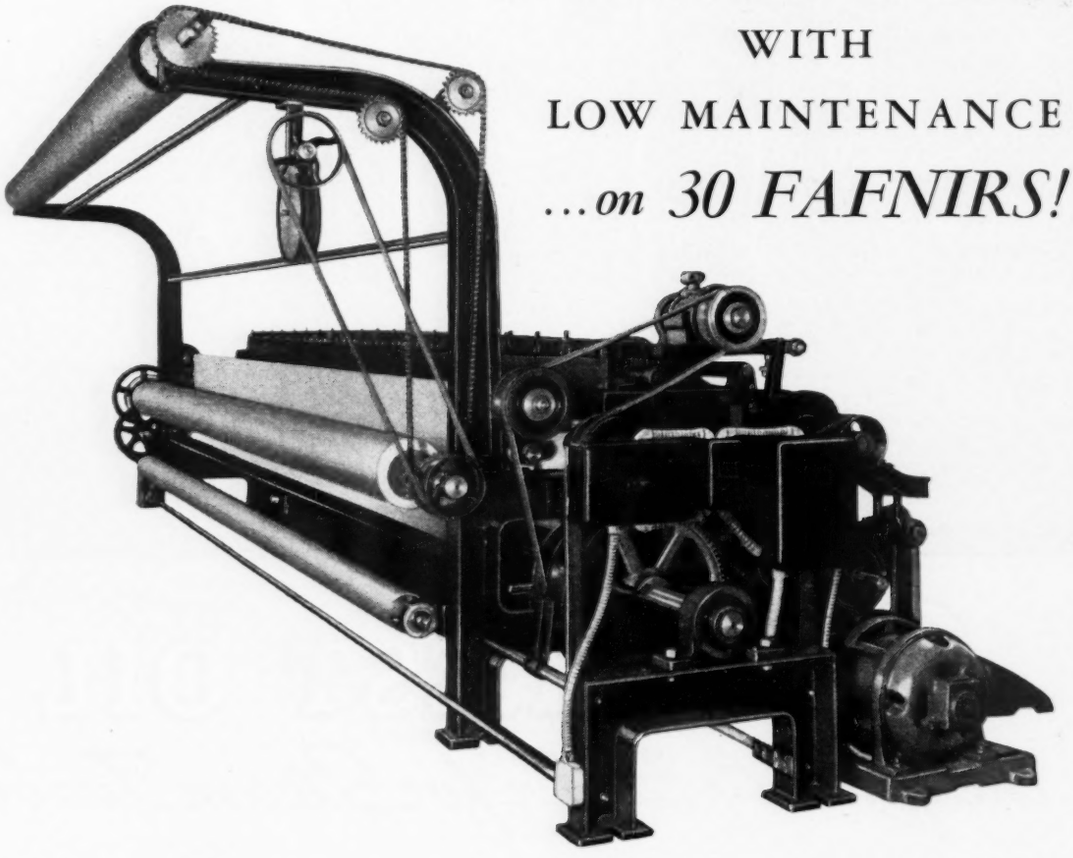
There is a real quality story behind Gulfcrest Oil. Ask the Gulf engineer who calls at your plant to give you complete details.

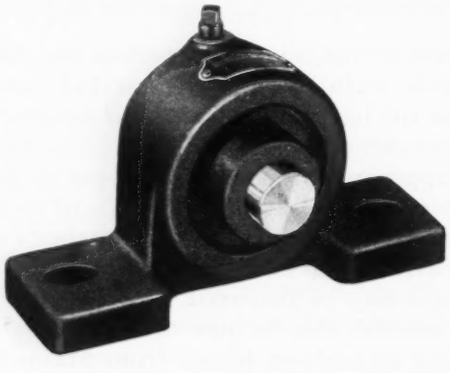
GULF INDUSTRIAL LUBRICATION

Gulf Oil Corporation
Gulf Refining Company
OFFICES: GULF BUILDING, PITTSBURGH, PA.

Country's Largest CARPET SHEAR

RUNS FRICTION-FREE WITH LOW MAINTENANCE ...*on 30 FAFNIRS!*





FAFNIR SAO *Heavy Series*
SINGLE PILLOW BLOCKS

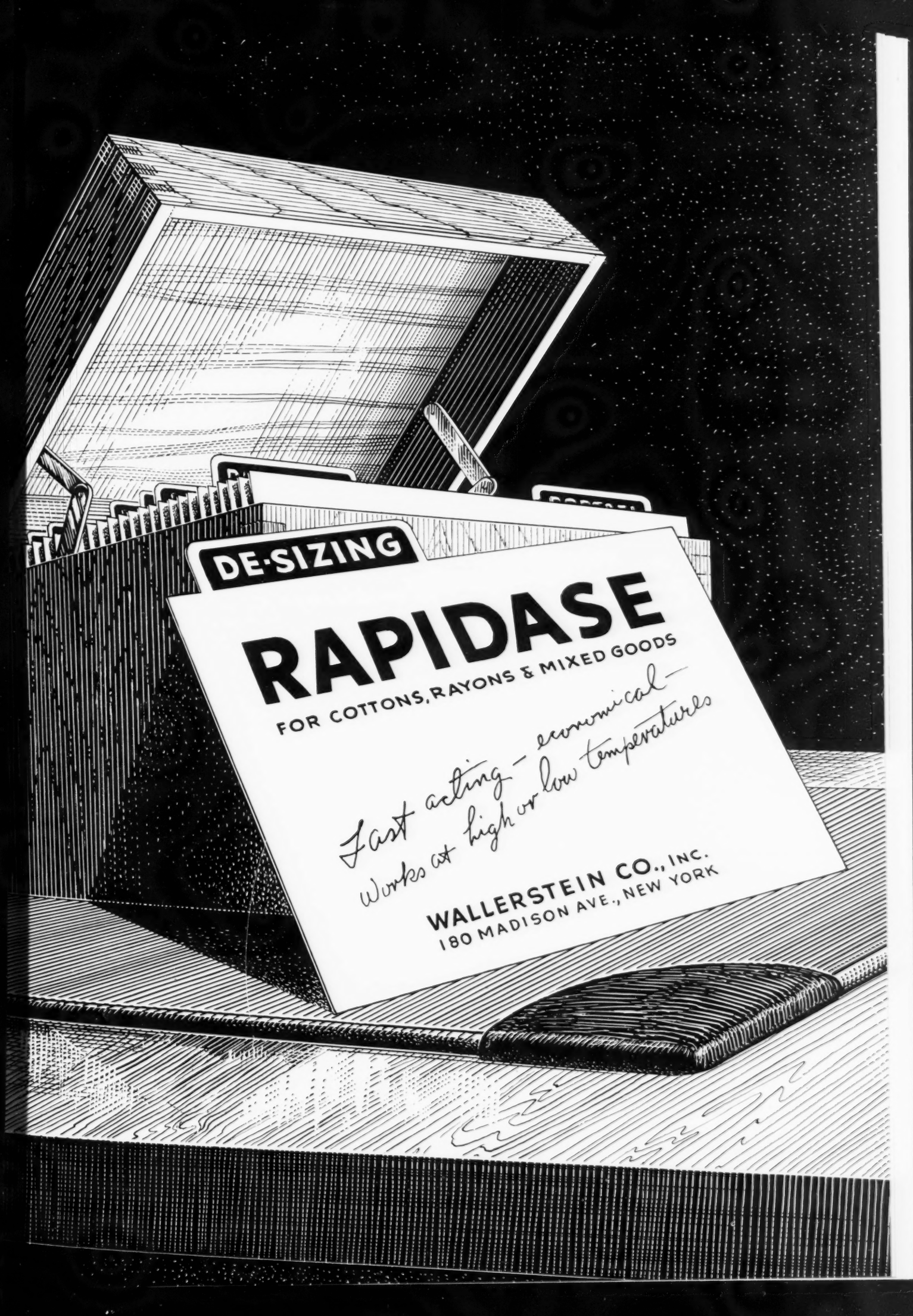
Eight of these units mean friction-freedom for the main shafts of this Shear.

Mainshaft, outboard frame, brushes, carrier rolls, idler pulleys of this 18 ft. Curtis-Marble Carpet Shear are equipped with Fafnir Ball Bearing Units for friction-free operation . . . less wear and tear on moving parts. Power, lubrication and maintenance costs are materially reduced. Better, faster and cleaner carpet shearing is assured.

Step up your speed, cut down your costs, with Fafnir Ball Bearing Units . . . each provides the unequalled ease of installation of the Fafnir Wide Inner Ring Ball Bearing with the exclusive self-locking collar. Made in sizes and types to serve your every need. Write to-day for the Fafnir Textile Catalog — it contains valuable information on what Fafnir Ball Bearings will do to cut your costs; improve your product. The Fafnir Bearing Company, New Britain, Conn.

FAFNIR BALL BEARINGS

THE BALANCED LINE—MOST COMPLETE IN AMERICA


DE-SIZING
RAPIDASE
FOR COTTONS, RAYONS & MIXED GOODS
Fast acting – economical –
Works at high or low temperatures
WALLERSTEIN CO., INC.
180 MADISON AVE., NEW YORK

Aldrich Synchronized Single Process Pickers

POSITIVELY DO MAKE EVENER LAPS

On every comparative test ever reported to us, Aldrich Synchronized single process pickers have made laps producing evener card sliver than laps from other pickers.

Cotton mills all over the United States have replaced other types of single process equipment with Aldrich Synchronizers and have never failed to improve the evenness of their card sliver.

Such results are no accident. They are due to the fundamentally correct Aldrich principle of *Synchronizing* all sections of the picker so that each contributes to the progressive evening of the lap as it passes through the machine.

Aldrich Synchronized single process picking is the ideal equipment for mills with long draft roving or spinning where the best possible laps are needed.

Made and installed by

AldricH MachinE

Greenwood, **WorkS** South Carolina

CRANE PLUG DISC VALVES

FOR HEAVY-DUTY SERVICE IN TEXTILE MILLS

● At a pressure of 300 lbs. and a temperature up around 550° F., steam can make short work of a valve that must be operated partly open —unless that valve is designed specifically to meet all those conditions. For this strenuous service, Crane will back its No. 382P Plug Disc Valve against the field. Here's the sturdiness to stand up, month in and month out, under the abuse of running steam continuously through a valve in throttling service. Here's the combination of design and materials that means faithful performance and a tight, sure seat, in service involving frequent opening and closing. Why? It's what's inside these 382P's that counts. It's the right mixture of brains and metals—backed by Crane's 80 years of knowing how to build valves right —checked by every test the Crane laboratories could devise—and proved by the experience of users everywhere. It will pay you to look "inside" a Crane 382P valve, see for yourself why its design is right and its metals chosen to resist *every* condition of use. "The Inside Story of Crane Plug Disc Brass Valves" tells you in a few, full-of-fact pages how Crane designs and builds these valves to give you uncommon service. Send for a copy today.

CRANE

VALVES · FITTINGS · PIPE
PLUMBING·HEATING·PUMPS

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO

NATION-WIDE SERVICE THROUGH 134 BRANCHES AND MORE THAN 500 WHOLESALERS.

The No. 382P—one of the 15 types of Crane's brass plug disc valves

IT'S WHAT'S INSIDE THAT COUNTS!

Burroughs

ELECTRIC DUPLEX CALCULATOR

DOES THE COMPLETE JOB

IN A SINGLE HANDLING OF THE FIGURES

This new Burroughs Electric Duplex Calculator—complete with direct subtraction and two sets of accumulating dials—saves needless steps in handling any accounting job. There is no second handling of the figures—no time or effort wasted. The two following examples illustrate typical savings:

INVOICING

It calculates the extensions and accumulates the results into a grand total; computes the discount; and, at a touch of the minus key, subtracts this discount from the gross to give the net result . . . all in one handling of the figures.

PAYROLLS

Computes the gross pay of each employee; totals various deductions; and, at a touch of the minus key, subtracts this total from the gross to give the net pay . . . all in one handling of the figures.

Other calculating jobs can be handled with equal speed and simplicity. For a demonstration—or full information—telephone the local Burroughs office.

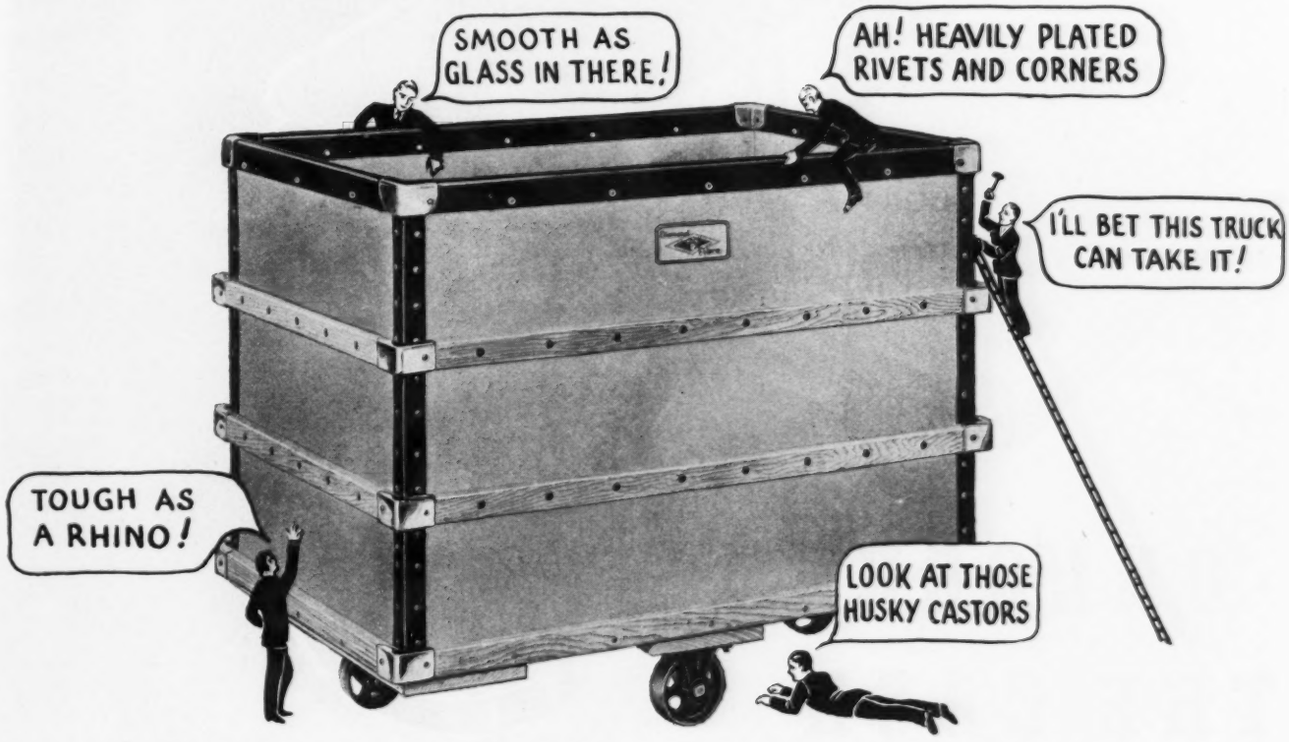
BURROUGHS ADDING MACHINE COMPANY
695 SECOND BOULEVARD, DETROIT, MICHIGAN

INDIVIDUAL TOTAL
or the Result of a Single Calculation
IN LOWER DIALS

Any amount in lower dials may be added to, or subtracted from, the amount in upper dials by touching the plus key or minus key

GRAND TOTAL
or the Net Result
IN UPPER DIALS

DIAMOND FIBRE TEXTILE TRUCKS


SMOOTH AS GLASS IN THERE!
AH! HEAVILY PLATED RIVETS AND CORNERS
I'LL BET THIS TRUCK CAN TAKE IT!
TOUGH AS A RHINO!
LOOK AT THOSE HUSKY CASTORS

These inspectors are right . . . DIAMOND FIBRE Trucks will stand close inspection from every angle. Designed from the ground up for textile use, they pile up savings for the millowner through their remarkably long life and freedom from repairs. The smooth interior insures safe handling of delicate fabrics. The super-sturdy construction provides stamina for a long hard life. DIAMOND FIBRE'S extreme lightness makes for easy handling as well as less wear on castors and floors.

Old or worn trucks entail additional maintenance cost — replace them with genuine DIAMOND FIBRE Trucks and reduce overhead. The catalog below describes our entire line of Hollow Ware—send off the coupon today.

Whatever your requirements in material handling equipment, you will probably find them illustrated and described in this comprehensive catalog . . . Trucks, Roving Cans, Tote Boxes, Barrels, Baskets, Trays in Diamond Fibre and other materials. Your request for a copy will receive prompt attention.

CONTINENTAL-DIAMOND FIBRE COMPANY

NEWARK, DELAWARE

Represented in Canada by

DIAMOND STATE FIBRE CO. OF CANADA LIMITED

Toronto

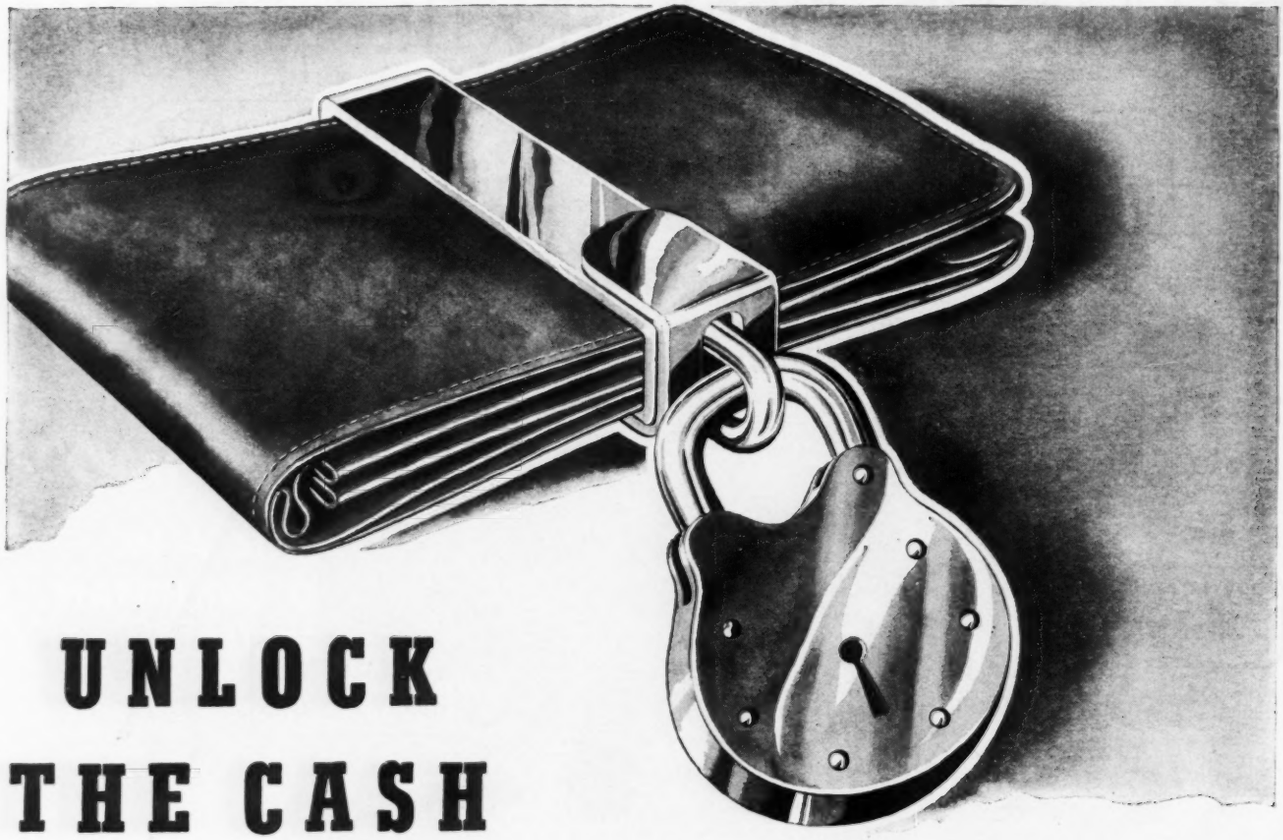
CONTINENTAL-DIAMOND FIBRE CO.
Newark, Delaware Dept "C"

Kindly mail at once your complete catalog of Diamond Fibre Hollow Ware to:

NAME.....

FIRM.....

ADDRESS.....



UNLOCK THE CASH

YOUR BUSINESS NEEDS

Learn How Many Concerns Now Keep Cash Resources High and Credit Risks Low.

YOU have unused assets in your business that can provide you with immediate liquid capital at low cost and with absolute safeguards against undue credit risks.

Our open account financing plan includes the Limited Loss clause which insures you against all credit loss beyond a small agreed percentage. It involves no "all-or-none" contract. You can discount part, or all of your receivables with us, according to your cash needs. You surrender no part of your business control . . . take in no salaried partner . . . face no maturing loans from time to time, nor the necessity to arrange new ones. Ours is a self-continuing, or immediately terminable plan, at your option. Yet it costs, as a rule, less than the cash discounts you allow your customers.

It will put your business on a cash basis without infringing on your control or inconveniencing your customers. In no case will your customers be notified of the change in your financing. In no way will their method of paying you be disturbed.

You can use your receivables on demand, to strengthen your cash position, improve your credit rating, discount your obligations to suppliers, meet payrolls, pay taxes, and in other profitable ways to promote your business welfare.

Experience has proved that our service gives a flexible, convenient type of financing to meet today's highly competitive conditions.

COMMERCIAL CREDIT COMPANY

Capital and Surplus Over $64,000,000

BALTIMORE

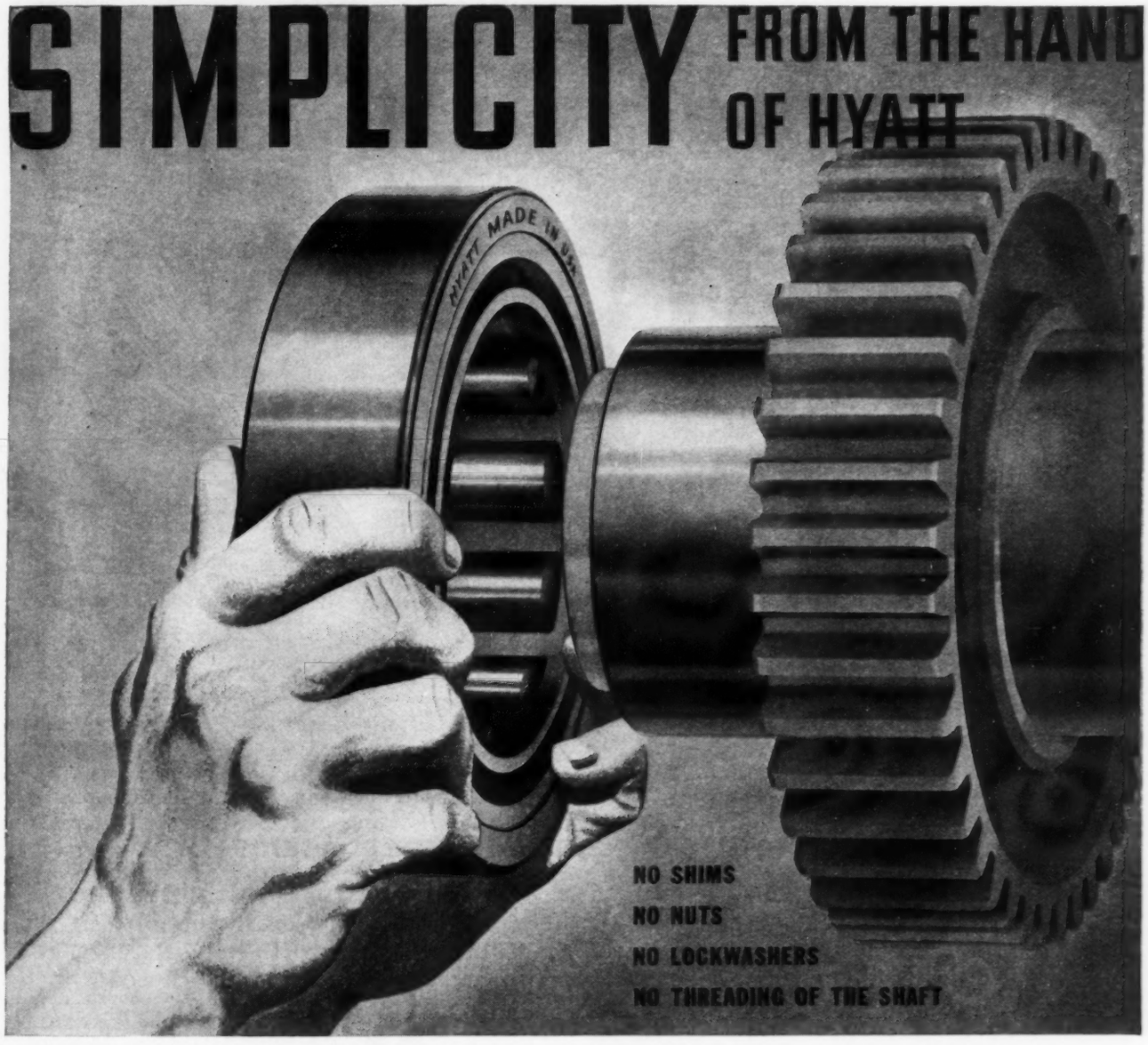
NEW YORK CHICAGO PORTLAND, ORE. SAN FRANCISCO

★

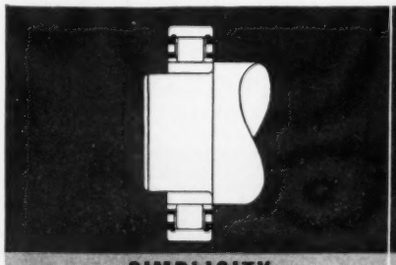
"Capital At Work"

On request we will mail you, without obligation, this concise booklet explaining our service. . . Simply tear this off and mail it, attached to your letterhead.

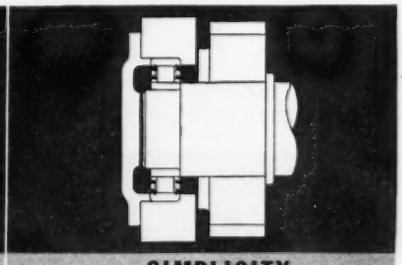
SIMPLICITY FROM THE HAND OF HYATT



WHERE LOADS ARE HEAVY and space is limited, where economy and dependability are essential, Hyatt Roller Bearings are used. Their simplicity of design helps make possible better built and more efficient textile machinery—smoother, quieter, more dependable operation. Therefore, as a builder you effect economies in design with Hyatts and as a purchaser of Hyattized equipment you are assured of less bearing wear and care—better yarn or cloth at less cost. Hyatt Bearings Division, General Motors Corporation. Harrison, New Jersey.



SIMPLICITY IN THE BEARING.



SIMPLICITY IN THE APPLICATION

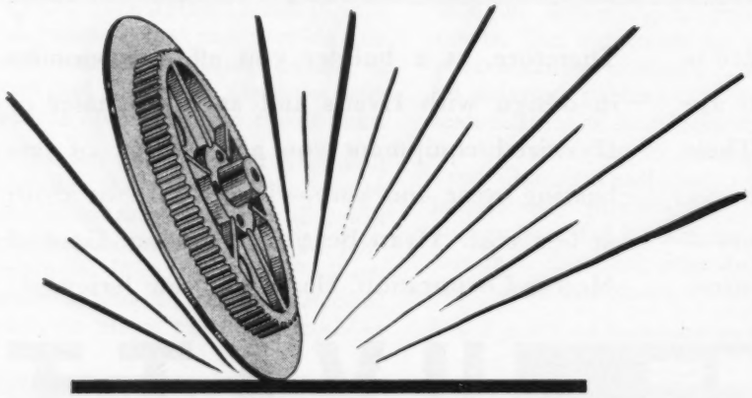
HYATT
ROLLER BEARINGS

They can TAKE IT!

YOU can treat our Etchison Steel Beam Heads ROUGH! They can stand the gaff of the hardest treatment!! Of course, no one would deliberately throw a beam head on the floor, but should one accidentally fall, it would not break.

Etchison Patented Steel Heads
For Loom Beams and Warper Beams

Etchison steel heads are made in such a way that there is a protective shield for the gear or the friction on the back side. They are practically indestructible. It is true that they cost more than cast iron heads, but they are worth the difference, as they save not only on breakage but the expense due to loss of a warp caused by broken beam heads.



MANY mills are using West Point loom beams because they thereby increase the efficiency of their weave rooms. Many also are changing from cast iron heads to Etchison patented steel heads.

You can put **"Old Man Efficiency"** in your weave room with West Point Loom Beams, and you can cut down on losses by the use of Etchison Steel Heads.

■ **Also manufacturers of WEST POINT SIZING VATS, WEST POINT SPIRAL GEARS, WEST POINT BEAM RACKS and other textile machinery, and repair parts.**

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

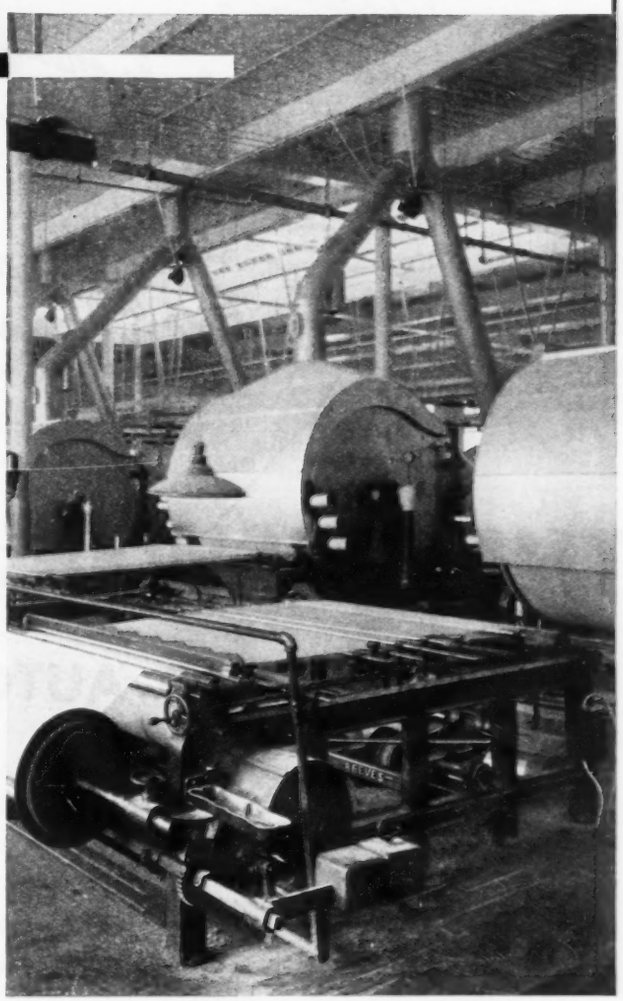
WHO DECIDES
HOW FAST *Your* MACHINES MUST RUN?

Builders of most leading makes of Textile machines believe THE MAN ON THE JOB should have the advantage of accurate and positive REEVES Variable Speed adjustability.

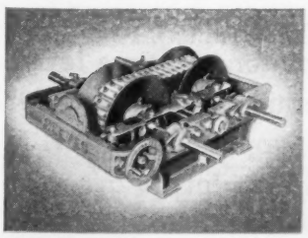
If conditions in the textile plant were always the same—if there were no variation in materials—no difference in kind of thread or cloth—no occasion to synchronize machines or processes—if all operators had equal experience and ability—there might be little need for variable speed control of production machines.

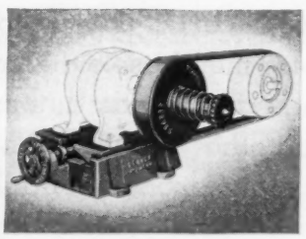
But we all know that these variables *do occur.* And the machines that turn out the best work, the most work—*or both*—are those which the *operator can adjust,* easily and accurately, for the exact speed required.

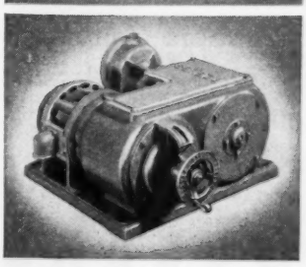
There is no compromise between quality and quantity on a machine which is equipped with REEVES Variable Speed Control. Simply by turning a handwheel the operator secures any speed he needs—even to a fraction of an r. p. m.—and that speed is *accurately* maintained until changed. REEVES Variable Speed Control is not expensive. . . . Builders of 1,300 different machines find one or more of the three basic REEVES units exactly meet their requirements. Designed for horizontal or vertical mounting. Automatic or manual control. Easily applied to any driven machine. Write us.



A battery of slashers equipped with REEVES *Transmissions for positive and accurate speed control.*







Pictured at left are the 3 Basic REEVES *units: the Variable Speed Transmission, the Vari-Speed Motor Pulley and (below) the Motodrive, the complete variable speed power plant.*

REEVES SPEED CONTROL

REEVES PULLEY COMPANY, DEPT. T-68, COLUMBUS, INDIANA

Send copy of new catalog No. G-384, just off the press, which describes the complete REEVES line and its use in textile plants.

NAME..... DEPT.....

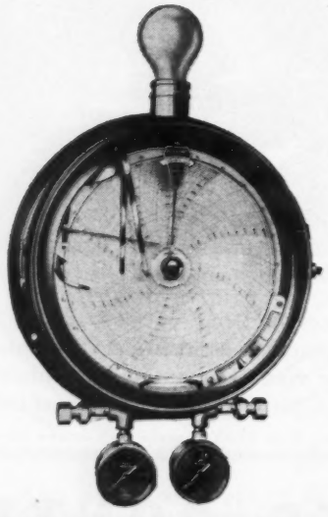
COMPANY..... STREET..... CITY.....

ADD UP THESE SAVINGS

THE ANSWER...

FOXBORO AUTOMATIC DYE CONTROL

...IS PROFIT CONTROL



Foxboro Dye Machine Controller with the elapsed time device insures the correct temperature for the exact time periods automatically. The operator merely sets the pointer and time lever. Savings are just as automatic and the answer a profit that textile mills appreciate. Bear in mind that Foxboro Controllers can be installed easily on your present machines. Get the facts . . . just drop us a line. The Foxboro Company, 18 Neponset Avenue, Foxboro, Mass., U. S. A. Atlanta Office: 101 Marietta Street Building. Branch Offices in 25 Principal Cities.

FOXBORO

REG. U. S. PAT. OFF.

DYE MACHINE CONTROLLERS

FREE, BUT THEY TELL YOU A LOT!

The brochures pictured on this page are charged with money saving data for the mill man interested in cheaper and better raw stock extracting and drying . . .

Hunter's booklet on raw stock drying contains 6 pages of text and illustration. It will tell any mill man how (a) he can reduce extracting and drying costs and (b) deliver a product that has the moisture balance so necessary to trouble free operation in handling raw or dyed fibres such as cotton, wool or cut staple.

The booklet on the right describes the latest addition to better extraction . . . the HUNTER MODEL G HYDRAULICALLY CONTROLLED SQUEEZE ROLLS for cloth or stock. It describes the benefits of continuous operation and tells you in detail of its valuable and accurate hydraulic pressure control.

For complete brochures and details of just what these modern units are doing for outstanding mills, simply mail the coupon. They are yours for the asking and without obligation.

MAIL THE COUPON TODAY!

JAMES HUNTER MACHINE COMPANY

NORTH ADAMS MASSACHUSETTS

SOUTHERN AGENTS:
Carolina Specialty Co., Charlotte, N. C.

WESTERN REPRESENTATIVE
E. G. Paules, 343 Bendix Bldg., 1206 Maple St., Los Angeles, Cal.

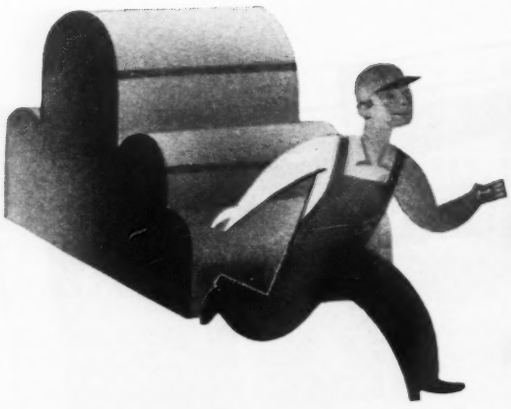
CANADIAN AGENTS: Colwool Accessories Limited
126 Wellington St., West, Toronto

Without obligation, please send Bulletin S R ☐ describing Model G Squeeze Rolls, and Bulletin describing Duplex Raw Stock Dryer ☐

*Name*_____ *Title*_____

Company _____

*City*_____ *State*_____



WHEN IN A HURRY

FOR CARD CLOTHING AND ALLIED PRODUCTS THINK OF 367, MEANING

3 FACTORIES
FALL RIVER, WORCESTER, PHILADELPHIA
6 REPAIR SHOPS
FALL RIVER, PHILADELPHIA, CHARLOTTE, GREENVILLE, ATLANTA, DALLAS
7 DISTRIBUTING POINTS
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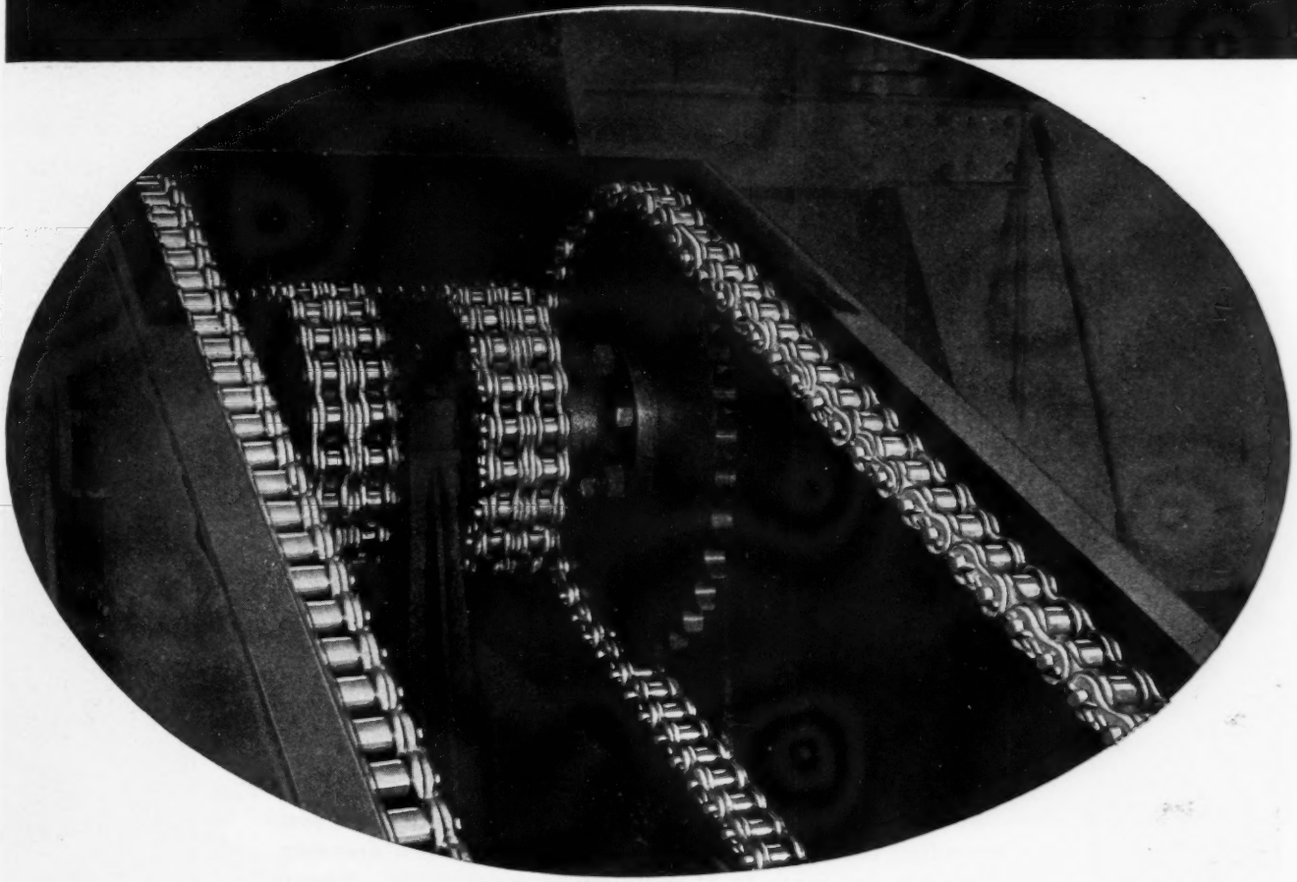

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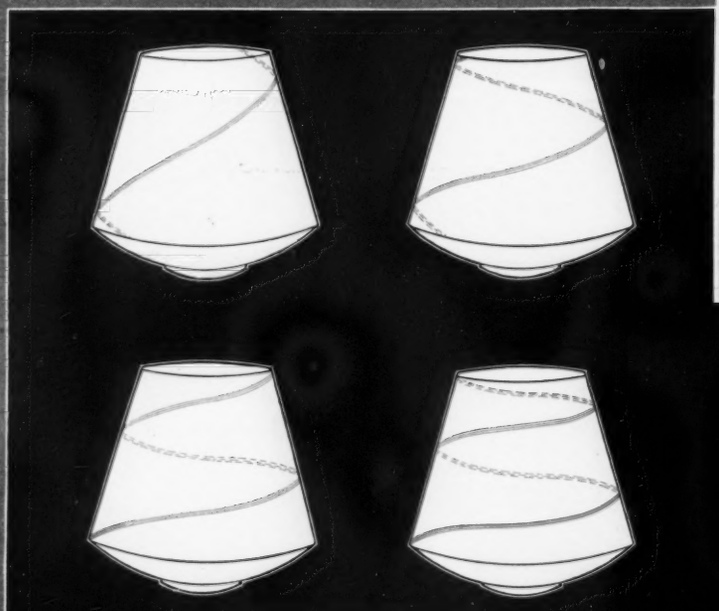

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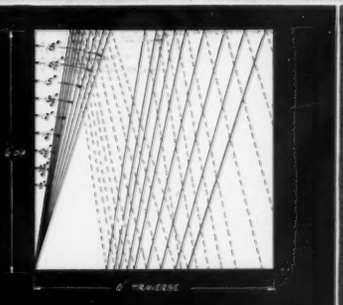

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PLUS THIS WINDING FLEXIBILITY

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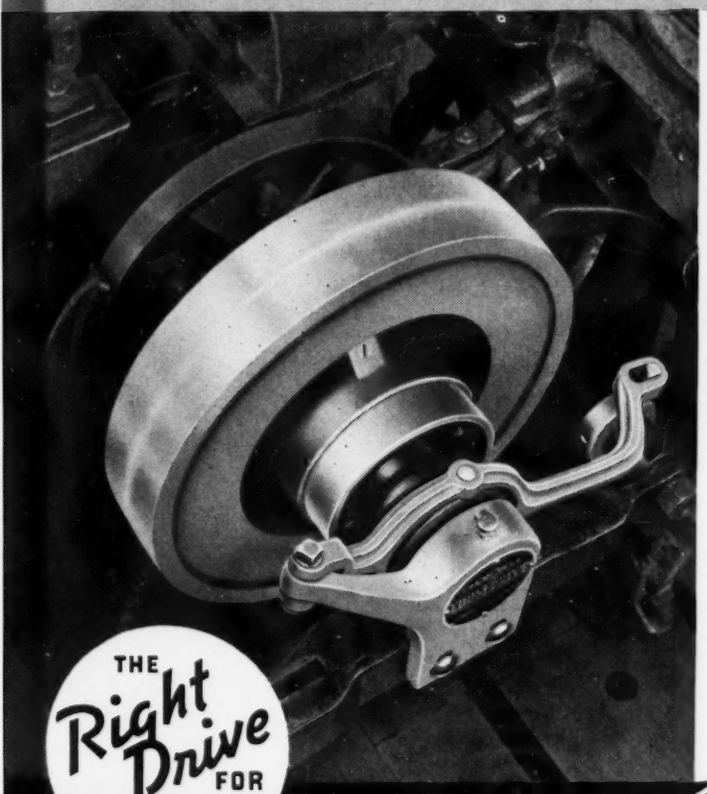

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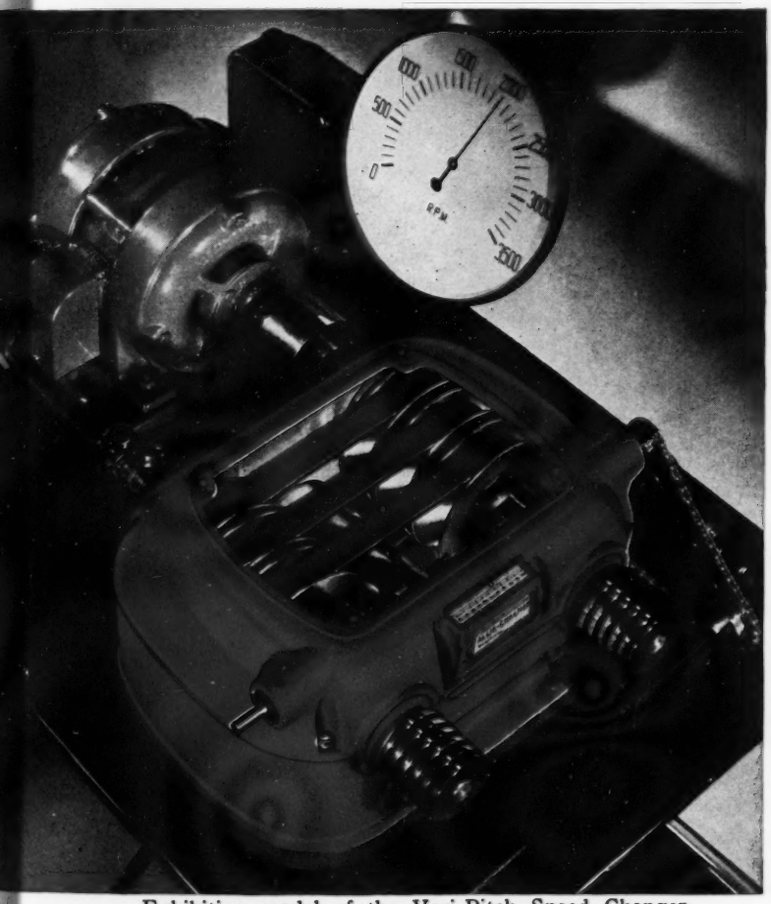
Puts Air to Work

VARI-PITCH SPEEDCHANGER



Exhibition model of the Vari-Pitch Speed Changer now being displayed in various parts of the country.

VARIABLE SPEEDS

Mechanically at 95% Efficiency Mean Lower Overhead and Operating Cost For You

Here is a unit that gives you variable speeds at a higher range than ever before at remarkably low cost. It eliminates at one stroke the necessity of using expensive multi-speed motors, or separate change-overs for every operation requiring a different speed.

That means you can cut your overhead and operating costs to a minimum because the Vari Pitch Speed Changer makes your production flexible without adding unnecessary and bulky equipment. You can run your machines at exactly the speed your operation demands. No steps, no springs, no guesswork. With the Vari-Pitch Speed Changer the speed setting remains constant.

It operates without vibration. It is silent. It is unusually compact. It is 95 per cent efficient — *the only efficient speed changer on the market today.*

Transmission engineers who have tested the Vari-Pitch Speed Changer declare it will revolutionize speed changing practice just as the Texrope Drive revolutionized transmission practice.

The Vari-Pitch Speed Changer is a product of Allis-Chalmers, originators of the Texrope Drive and the Vari-Pitch Sheave, and is available in ratios of 3¾ to 1 — maximum output speed 3500 rpm. Get in touch with the nearest Allis-Chalmers Texrope representative, and find out how you can cut your production costs through the use of the Vari-Pitch Speed Changer.

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TEXROPE DIVISION

ALLIS-CHALMERS

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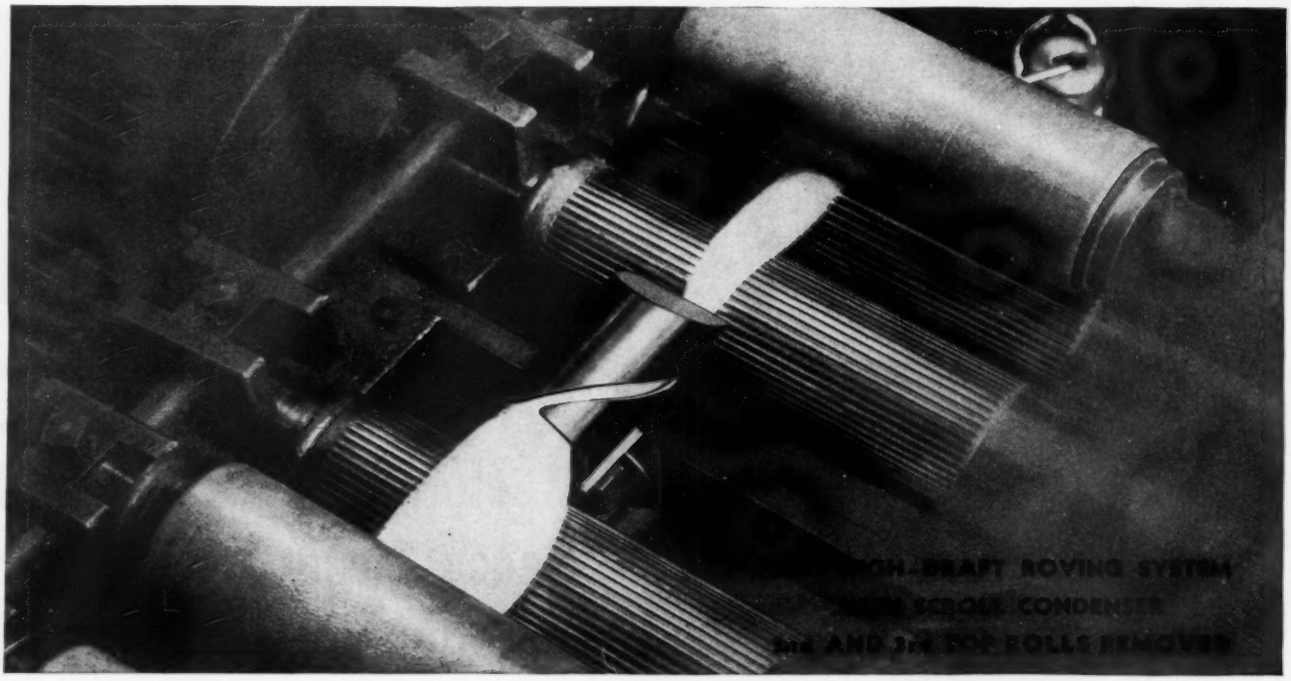
HOW TO MODERNIZE YOUR CARD ROOM AT SMALL COST AND REALIZE UP TO 90% ON YOUR INVESTMENT



Because the H & B High-Draft Roving System can be (and has been) successfully applied to practically every type and make of existing roving frame, it offers an opportunity to modernize your card room at relatively small cost (perhaps $7,000 to $10,000).

Furthermore this outlay is quickly paid for by the large savings effected, the return per annum on the investment sometimes amounting to as much as 90%.

The H & B High-Draft Roving System is usually applied to intermediate and roving frames. It is designed to take a sliver from the drawing frame and draft up to 35, producing up to 6.00 hank roving in one operation, for regular or long draft spinning. The number of rollers (4 or 5) is determined by the drafting requirements.

It is now successfully operating in over 50 mills.

Let an H & B Technical Survey determine what this system will do for YOU. One of our engineers will call on request without obligating you in any way.

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CLINTON, S. C.

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THAT MEANS MORE "Mileage" FOR WESTINGHOUSE MOTORS

Protection against lint in the motors that drive your spinning frames, roving frames and other textile machinery is insurance for your production schedules.

Westinghouse motors have these four provisions to insure them — and you — against "lint trouble:"

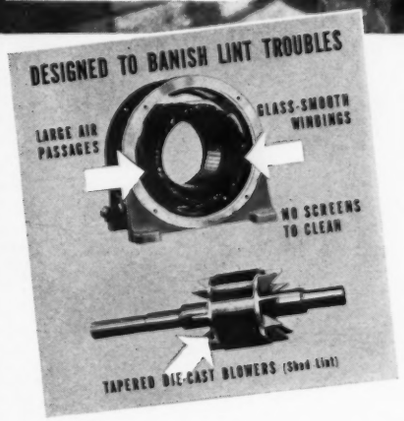
1. Specially tapered rotor vanes, against which lint cannot pack, and which circulate air at a velocity that will remove lint.
2. Glass-smooth windings prevent lint from clinging.
3. Large air passages.
4. No screens to require cleaning.

Thermoguard Protection, making motors self-protecting against overheated windings, can be applied to lint-free motors.

For complete information on these and other time-proved advantages of Westinghouse Lint-Free Motors, call your nearest Westinghouse Office or Industrial Agent.

WESTINGHOUSE ELEC. & MFG. CO.
East Pittsburgh, Pa.

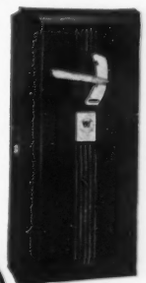
Dependable drive for textile machinery — Westinghouse Lint-Free Motors and "De-ion" Linestarters.



Loom Motors—extra strength, high efficiency, readily accessible oilers, long-life bearings.

WK — 18 Starter — Guards loom motor against overload damage. Safely and quickly reset.

"De-ion" Combination Linestarter — "De-ion" Motor Starter and Nofuze circuit breaker combined in one compact enclosure.



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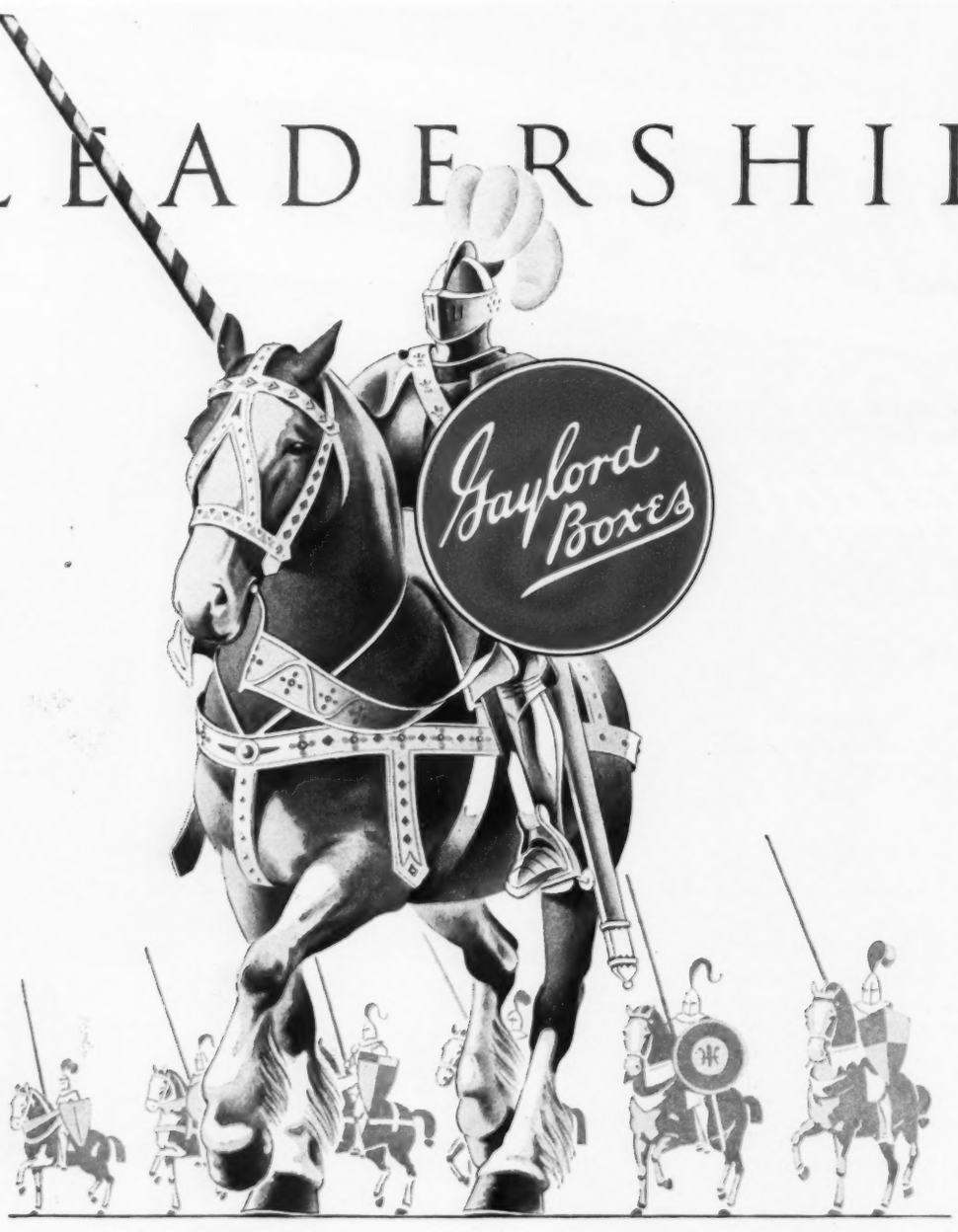

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Textile Industries

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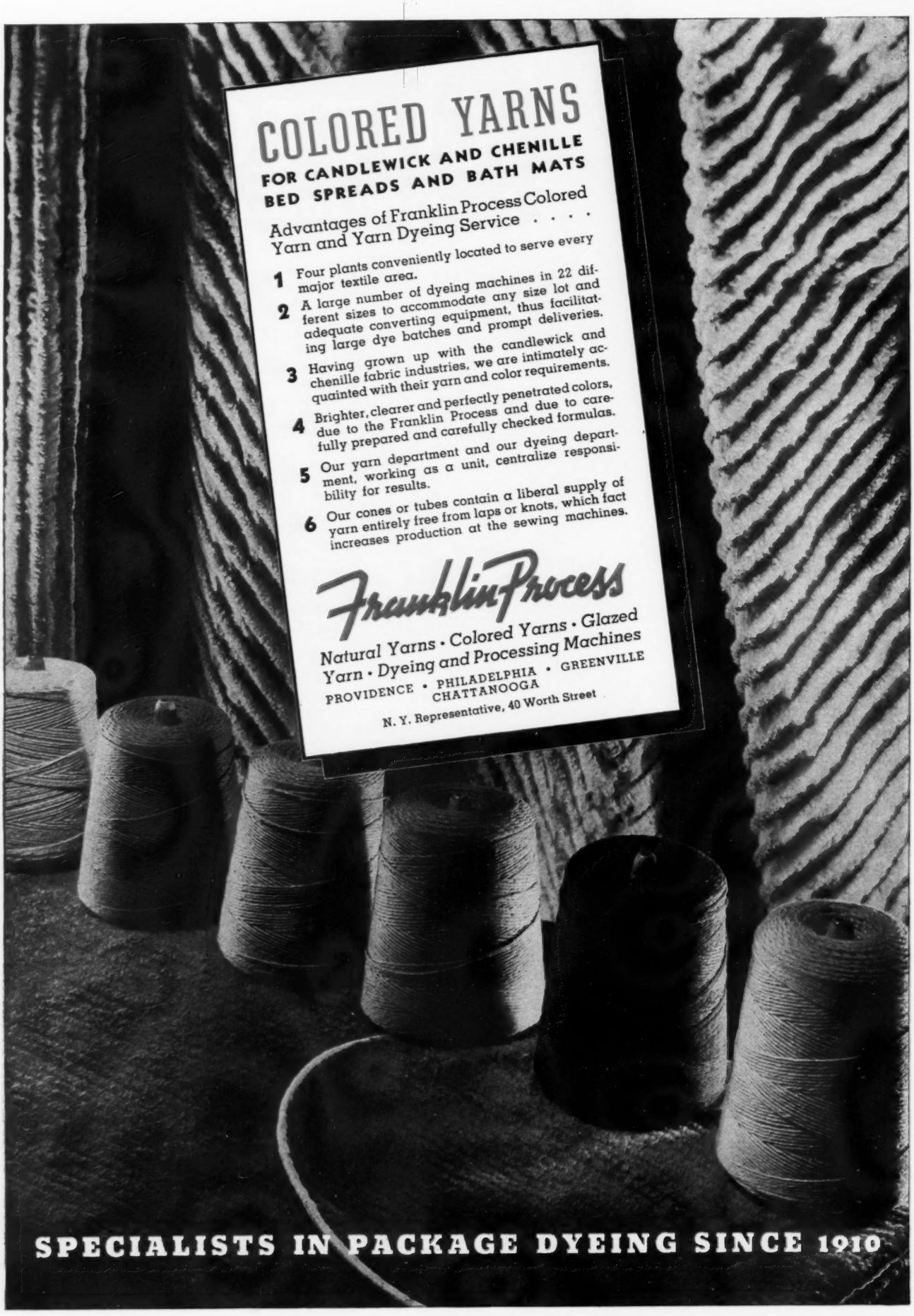
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FOR CANDLEWICK AND CHENILLE BED SPREADS AND BATH MATS
Advantages of Franklin Process Colored Yarn and Yarn Dyeing Service . . . .
1 Four plants conveniently located to serve every major textile area.
2 A large number of dyeing machines in 22 different sizes to accommodate any size lot and adequate converting equipment, thus facilitating large dye batches and prompt deliveries.
3 Having grown up with the candlewick and chenille fabric industries, we are intimately acquainted with their yarn and color requirements.
4 Brighter, clearer and perfectly penetrated colors, due to the Franklin Process and due to carefully prepared and carefully checked formulas.
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SPECIALISTS IN PACKAGE DYEING SINCE 1910

SHORTS AND REMNANTS

"Who Makes It?"

COTTON, Serving the Textile Industries, has numerous requests concerning manufacturers of all types of textile equipment and supplies, is glad to furnish such data as are available. Typical are these current letters and wire:

"We should feel much obliged if you could give us the names and put us in touch with the producers of synthetic roller coverings for the cotton spinning industry, with the exception of Messrs. Goodrich, producers of the Koroseal, and who are dealing direct with the spinners over here".

Verson Vlies & Courcier
Machines & Accessories Textiles
Lille, France

Names of other producers furnished this firm were Armstrong Cork Company, Roger W. Cutler Company.

"Can you furnish us with a list of firms who manufacture Narrow Fabric Looms running from ¼ inch (¼") to six inches (6") in width."

HERBERT HARRISON
Pres. & Treas., John Hetherington & Sons, Inc.
Boston, Mass.

Narrow fabric loom manufacturers include Fletcher Works, Inc., Philadelphia; Sipp-Eastwood Corp., Paterson, N. J.; Dubied Machinery Co., New York; American Textile Engineering, Inc., Kearny, N. J.

"We have read with interest the letter of Contributor No. 6727 on making slub filling.

"We would appreciate your giving us the name of the manufacturer of the slub attachment which this contributor says is on the market".

A. U. PRIESTER, JR.
Technical Supt., Callaway Mills
LaGrange, Ga.

Contributor No. 6727 states that "manufacturer of equipment for making slub yarn on spinning is Whitin Machine Works, Whitinsville, Mass. Attachment shown in my article manufactured by Precision Gear and Machine Company, Charlotte, N. C."

"WE ARE INTERESTED IN SECURING INFORMATION ON MACHINE TO CONDITION YARNS UNDER PRESSURE OR UNDER VACUUM CONDITIONS AND UNDERSTAND SUCH MACHINE MADE BY AMERICAN LYDON COMPANY AND H W ATMOSPHERIC MACHINE COMPANY.

"WIRE US COLLECT ANY INFORMATION YOU HAVE CONCERNING A MACHINE OF THIS TYPE, GIVING MANUFACTURERS NAME AND ADDRESS SO WE CAN GET IN TOUCH WITH THEM."

L. R. BRUMBY
Gen. Supt., Bibb Mfg. Co.
Macon, Ga.

Yarn conditioning machines using pressure are made by Industrial Dryer Corp., Stamford, Conn. (H-W Yarn Conditioner); Lydon Bros., Jersey City, N. J. Other yarn conditioners made by Seydel-Woolley Co., Atlanta, Ga.; Hygrolit, Inc., Kearny, N. J.

AN OPEN LETTER

Mr. Hugh Comer, V. Pres. and Mgr.
Avondale Mills
Sylacauga, Alabama

Thank you and all of your people for the courtesies extended to me, and to Bob Philip on your annual inspection trip last week.

I only wish that it were possible for you to take everyone in the United States who helps mold public opinion—editors, legislators and leaders through this same trip—for them to see living conditions in your villages, your schools, swimming pools and play grounds, hospitals, farms, camps, the training that both employees and children are getting as indicated in the interesting programs you presented. I wish that it were possible for the thinking public to know what you and other really progressive and far sighted Southern textile people are doing and what you are aiming at.

Again, thank you. I only hope that we can capture some of this spirit in our "Forty Years of Textile Progress" in our coming October issue.

JOHN C. COOK
COTTON, Serving the Textile Industries
Atlanta, Ga.

◆

Likes Full-Fashioned Articles

"I wish to express my appreciation for the splendid articles on the Fixing of Full Fashioned Hosiery machines by Arthur J. Cobert which are appearing in your Cotton magazine. It is evident that Mr. Cobert is well versed on the subject.

"I find that I have lost the fourth and fifth articles appearing in the November and December issues. Will you kindly advise me if I may obtain these from you?"

E. BRYAN RICE
Union Mfg. Co.
Frederick, Maryland

(We have had requests for several back articles of Mr. Cobert, may reprint these in book form).

◆

Running Spun Rayon

"Please send me any data you have published on running spun rayon."

CARL WOOD
Covington Mills
Covington, Ga.

1937 Cross Index lists such articles as "Making Yarns and Cloths from Rayon Staple", "Modernization and Maintenance in the Rayon Industry", "Details For Running Spun Rayon", "Running Cut Staple Rayon", "Card Settings for Rayon Staple", "Pointers on Rayon Weaving", "Running Rayon and Other Fibers with Cotton", "Rayon Staple—How to Dye It in Raw Stock".

Greenville Show 1939

"We are pleased to inform you that ———— Corporation has taken section — in the balcony, and we are sending them contract today.

"We regret that it is not possible to place them elsewhere than on the third floor. Practically everything that is not spoken for is gone. *We do not recall having ever had a greater demand for space a year before a show opens than we have experienced this time.* On our part we are preparing to make it one of the best shows we have ever had."

W. G. SIRRINE
President, Textile Hall Corp.
Greenville, S. C.

With almost a year to go, this speaks well for the 1939 outlook for textiles, and manufacturers who do not make reservations now will find no display space available later.

◆

"Keep Eyes Peeled"

" . . . This question of shrink is another one that we have been working on, and if you should happen to receive any comments on this subject, we would be very interested in seeing them.

"We of course keep our eyes peeled for information in your magazine, that particularly affects our problems, and we are continually finding information that is of great value to us."

CHARLES C. EMMONS
General Manager
Wm. E. Hooper & Sons Co.
Baltimore, Maryland

◆

Clear and Complete

"Thank you very much for the copy of the April number of COTTON containing the article with reference to horizontal striping attachments. This article has been read with a great deal of interest and we find it to be a very clear and complete description of the three types of attachments which it covered. As far as our records show, it is historically accurate.

"The care of the latest type attachment (Figure No. 3) is exceptionally good advice and should prove of assistance to fixers.

"We shall be very much interested in reading the subsequent articles which we understand you plan to publish in later numbers".

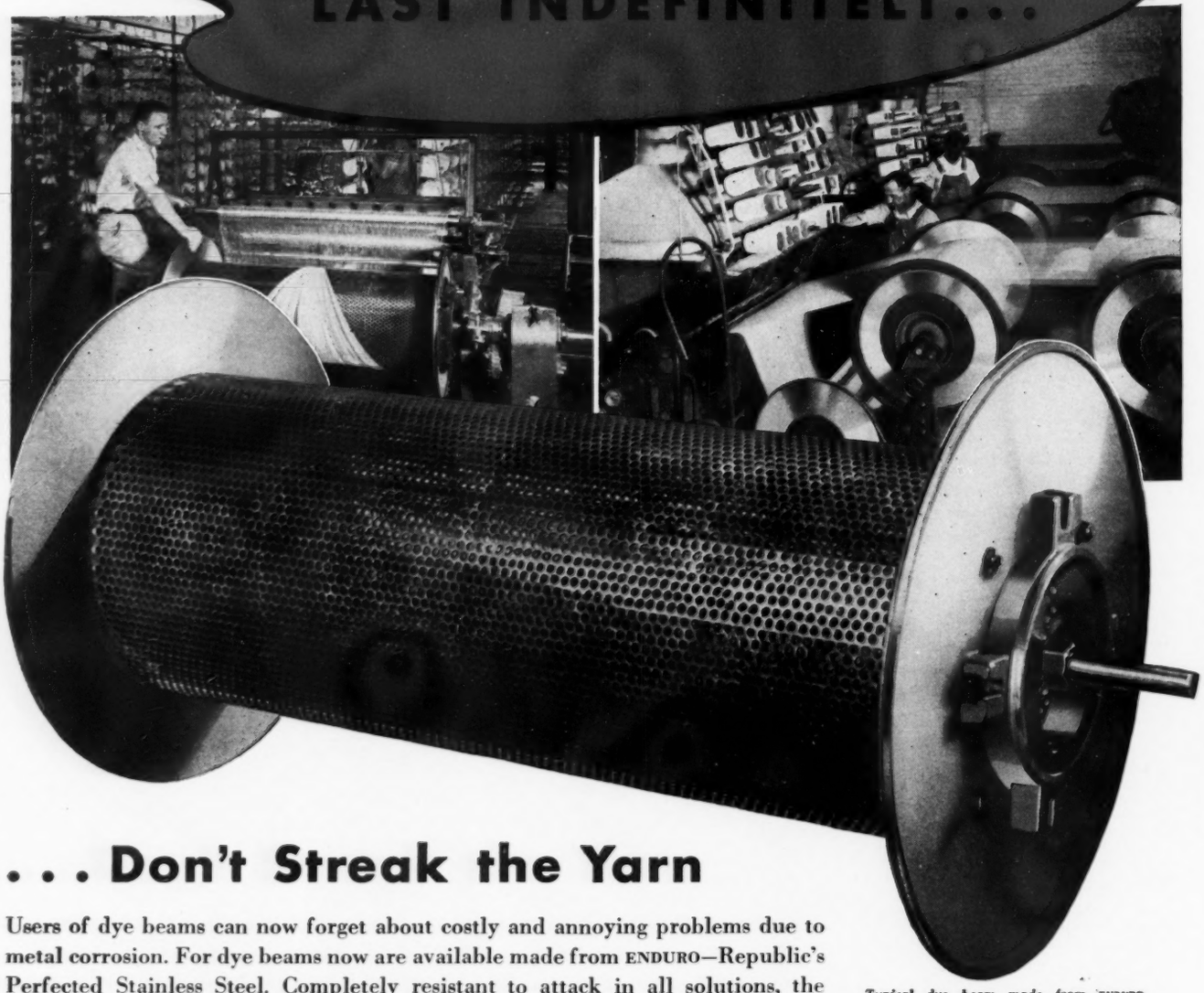
W. R. MARSLAND
Scott & Williams, Inc.
Laconia, N. H.

◆

Tsk! Tsk! Dept.

Several readers noted an error of 100 years in these columns in May. In an article on early American textiles we stated that in 1807 there were 8000 American spindles, in 1915, 500,000; and that machinery salesmen would wager that some of these spindles are still running. Proofreaders failed to note that it was 1815 when 500,000 spindles were in use. (There were over 40,000,000 in use by 1915). Equipment salesmen insist that some of them are still running, in spite of the 100 years.

Now DYE BEAMS LAST INDEFINITELY...



. . . Don't Streak the Yarn

Users of dye beams can now forget about costly and annoying problems due to metal corrosion. For dye beams now are available made from ENDURO—Republic's Perfected Stainless Steel. Completely resistant to attack in all solutions, the ENDURO dye beam can be used for dyeing and bleaching . . . without any possibility of rust or corrosion streaking the yarn. In addition the ENDURO beam is lighter, stronger and easier to keep clean . . . and with ordinary care should last indefinitely. Be sure you have full information on ENDURO dye beams and other ENDURO textile equipment. Write Republic, Dept. C at Cleveland today. Republic Steel Corporation, General Offices: Cleveland, O.; Alloy Steel Division, Massillon, O.

Typical dye beam made from ENDURO *Stainless Steel by Morton Machine Works, Columbus, Georgia. (Perforated by Hendrick Manufacturing Co., Carbondale, Pa.)*

ENDURO
REPUBLIC'S PERFECTED STAINLESS STEEL
REPUBLIC STEEL
REG. U. S. PAT. OFF.

REPUBLIC STEEL

STEEL AND TUBES, INC. . . . TRUSCON STEEL COMPANY . . . UNION DRAWN STEEL DIVISION
NILES STEEL PRODUCTS DIVISION . . . BERGER MANUFACTURING DIVISION

COTTON
SERVING THE
Textile Industries

June 1938 Vol. 102 No. 6

Compare Textile Machinery and Automobiles? No!

INVIDIOUS COMPARISONS have been drawn between the tumultuous progress in the automobile industry and the staid placidity of textiles. The automobile of five years ago seems queer, clumsy and obsolete today, while the textile machinery of 30 years ago is still considered in many cases satisfactory equipment. It is often asked why textile machinery has not shown the same tremendous improvement and refinement that has been so evident in automobiles. Why is it not practicable to make textile machinery so much better every few years that older equipment is completely obsolete?

We are living in an age of gadgets, and the automobile is the master gadget of them all; yet of all the contraptions and dinguses that we find so necessary to everyday life, there is practically none so frail, so perishable, so transient as the automobile. Compared with textile machinery, the motor car is as ephemeral as a May fly. A good watch, with even ordinary care, will last a lifetime; the clock which regulates the coming and going of the help in the mill will last as long as the building itself. A Corliss engine has a useful life of 50 years or more, and will run for 10 years on a stretch without maintenance of any sort whatever, beyond oiling; opening machinery is practically indestructible; pickers are good a lifetime; the cards seem to do as good work at the end of 30 years as when new. Textile machinery slowly becomes obsolete, but it almost never completely wears out if it is given any sort of decent attention. Hundreds of mills built before 1900 are still running with substantially the same machinery which started them up. With first-class maintenance, much of this machinery is still in excellent condition.

BUT WHAT of the automobile? If operated on the same basis as a cotton mill, its useful life is about six months; during which time it has required more maintenance and closer attention than most any other known kind of machinery, and after six brief months of continuous use, it is a haggard and toothless wreck, fit only for the junk pile. That the life of an automobile is even as much as a few years is because it is so little used at the hands of the average driver.

If we should take a reasonably good motor car costing in the neighborhood of $1,000.00—neither one of the cheapest nor one of the most expensive models and operate this car at its normal cruising speed for 80 hours a week, week after week, it would do approximately 5,000 miles a week. After each day's run of 1,000 miles, it is necessary to drain and change its oil and give it a thorough lubrication. Where its stationary brother has required perhaps a quart of oil to keep it going for 16 hours, the engine in the automobile takes six quarts. Twice a week, it is necessary to remove and clean the air filter. Once a week, the transmission and differential must be drained, flushed, and repacked. At the end of two weeks, it will need a new oil filter, and probably new spark plugs and timer points. In three weeks, it will probably need an entirely new set of tires. In four weeks, another new oil filter and probably spark plugs and timing points. At the end of six weeks, we are ready for a new set of tires; the valves probably need grinding, the brakes will certainly need adjusting and we require a new oil filter.

At the end of three or four months, the car needs a complete overhauling. The steering gear is in bad shape and dangerous; new piston rings and pins are needed; the cylinders probably need grinding, and the average motorist would consider the car pretty well shot and ready to trade in. However, with thorough re-building it would continue to go through this same cycle for about three months more, after which it has covered about 125,000 miles, and is next door to being a complete wreck if it has been driven steadily somewhere near capacity speed all of this time.

No wonder then that there is so much room for improvement, so much opportunity for change, in a mechanism so perishable, and apparently so filled with glaring weaknesses. The average driver is said to keep a car only a little more than two years before trading it for a new one, and the car generally passes through three or four hands before it winds up on the city dump. No wonder such perishable machinery can be remodeled and restyled every year like fabrics for women's dresses.

However, it is observable that those automobiles which are expected to last, rather than wear out, follow a very conservative plan, much after the fashion of textile machinery. It requires an expert eye to tell whether a Rolls Royce is two years old or ten.

NO DOUBT the textile industry and textile machinery manufacturers have been too conservative. Quite

likely more progress could have been made in the development of new ideas and more effective methods, but sensational changes can hardly be expected where machinery is expected to last a lifetime, instead of a few years. The purchaser who buys something that he only expects to keep two years is far more likely to be willing to take a chance on radical innovations than if his purchase must be used for 40 years. Conservatism is accentuated by the length of time the purchaser must use a thing.

Cotton mills particularly have made enviable progress in the last 10 years in accepting such new ideas and methods as have seemed sound and justifiable. They must continue to do this, and cotton mill machinery manufacturers probably need to do more development and research work than ever before, but that cotton mill machinery will ever follow the rapidity of change inherent in the automobile business seems far-fetched. Cotton mill machinery just naturally lasts too long.

We Should Have More Mill Inspection Tours . .

PARTICIPATION last month in the annual inspection tour of Avondale Mills and Cowikee Mills in Alabama strengthened the belief that such occasions, properly conducted, constitute a very worthwhile enterprise for a textile concern.

The Avondale-Cowikee tour—probably the pioneer activity of its kind in the southern textile industry—has been conducted each spring for several years. The participating group consists, first, of the officials of the mills together with the operating staffs of the individual units; in addition, guests include state, county and local government officials, neighboring farmers and business men, representatives of the mills' selling agencies, and some of the mills' customers.

The procedure, in this instance, is illustrated by the schedule of this year's inspection tour. Starting at the Cowikee Mills, in Eufaula, on Sunday evening, May 8, the party inspected the mills there and at Union Springs, and the Avondale plant at LaFayette on Monday. Monday evening and Tuesday morning were spent at the Avondale Mills plants in Alexander City; at Tuesday noon the party moved on to the Avondale plant at Sycamore, then Tuesday evening to Sylacauga, remaining there until Thursday, visiting the Pell City plant during the morning, and concluding the tour at the Birmingham plant on Thursday afternoon.

At each mill community visited, the party thoroughly inspected the plant and other properties, and in each case a splendid program of entertainment, usually by the school organization in the mill community, was staged.

TO THOSE PARTICIPATING in an Avondale mill inspection tour for the first time, the occasion is a revelation. To those whose good fortune has made several previous visits possible, the trip is always a stimulating experience and an inspiration. The informal character of the party provides a means of profitable and broadening contact for all concerned. In so far-flung an enterprise, the association of the executives and the operating men, visiting and inspecting each other's individual jobs together, furnishes a point of view on the organization as a whole, and its activities, that is not obtainable within the confines of one unit or plant. Such a tour, bringing the commission house's salesman to the plant, and into contact with the manufacturing man, provides a basis of greater mutual understanding and co-operation there than is possible between men through correspondence alone or when the manufacturing man goes to the "market" or to the customer's plant with the salesman.

IT IS TOO OFTEN TRUE that industry, and especially the textile industry, is subjected unfairly to criticism that arises from misinformation and lack of first-hand knowledge of conditions on the part of local, state, and federal legislators and other officials. Such a tour as that conducted annually by Avondale-Cowikee, including a number of such officials in the group, furnishes an opportunity for first-hand information of actual conditions of work and play, of educational activities and the forces of improvement and progress which are definitely at work, under intelligent direction and encouragement, in a majority of the South's mill villages. The facts offer incontrovertible evidence of the intent, the methods, and the problems of the progressive mill management, and of the results in building citizenship, character and health. No unprejudiced mind could take away from such a tour anything but respect and admiration of the work and accomplishments along these lines as a result of the efforts of the Comers and their associates in Avondale and Cowikee.

Similar efforts and similar results, in varying degree, prevail generally in this industry, which for too long has maintained generally too indifferent an attitude toward public opinion, and has failed to gain the public goodwill which is its due. Other group organizations—the Callaways at LaGrange, the Marshall Field group at Spray, and others—conduct tours of this character, and find them good. It is true that the larger organizations may be able to put on a more extensive program, but it is not beyond the facilities of any mill, whether a single-unit or multiple-unit organization, occasionally to conduct an "open house". It will stimulate and refresh the members of the organization itself. It will create a closer bond between the manufacturer and the selling agent and the customer. It will open the eyes of those who should be and want to be the friends of the mill. It is not unusual to find, even in a mill town, many business and professional men who have never so much as visited the community's chief industry. An occasional open-house tour, whether modestly or elaborately staged, will do much toward the creation and development of understanding, confidence, mutual trust and good will.

A Simple, Convenient Rack for Storing Steel Heddle Frames

By M. R. Harden

THE PROBLEM of how and where to store steel heddle frames has always given us a great deal of concern. These frames are an expensive part of any mill's equipment—yet often they are hung on pins driven in the wall or posts, stood against something, or stacked up on the floor.

We feel that we have solved this problem of caring for our heddles very satisfactorily, and would like to pass it along to those who have not yet found a method that will suit their conditions. In attempting to store our frames we have two very important things to consider; first, we want to keep them in good order so they will not become broken or bent; second, we want to have each draw, or grade, easily accessible to the drawing-in frame or machine. In other words, if it is necessary to take down several heddle frames every time in order to find the right set, the heddles and frames are often damaged and mixed.

In many mills it is impossible to hang all the frames along the wall, and floor space is usually very valuable to all of us. Therefore, we started to work on a rack which would set on the floor, carry a large number of heddle frames, make each style or draw accessible, and preserve the condition of our equipment. Our first effort was close to being what we wanted except for one thing. We used ⅜-inch by 1¼-inch iron arms fastened to the upright standards, and slipped each shaft over these. This had a bad effect upon the heddle eyes at the point where the frames slipped over the irons. We noticed that the eyes were being bruised or bent by them.

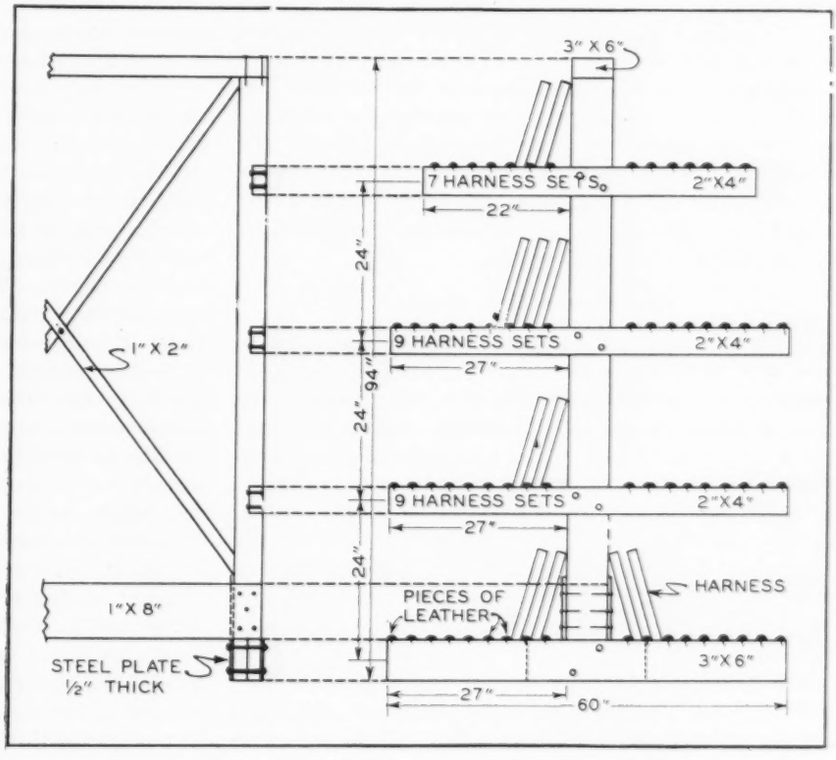
After some experimenting we arrived at the rack shown in the accompanying sketch. We used dressed oak lumber for making the racks. The 2x4-inch cross members were cut into the uprights to give added strength, and two carriage bolts were inserted to hold them in place. A piece of steel plate ½-inch thick, cut into the shape of an inverted "T" was bolted on at the bottom to keep the rack upright when there are more heddles stored on one side of the rack than on the other. This piece of steel also gives added strength to the rack.

WE ARE reminded of an advertisement we saw once in front of a shoe store, "Give your feet one thought and then forget them". Surely when the heddle frames are stored in the manner described in the accompanying article there is no need to worry further about them. They are safe from damage and when the superintendent has a call for them he knows the heddle frames will be just as good as when last used . . . . . .

The rack is further strengthened by small pieces which are nailed diagonally between the ends. These pieces are 1x2-inches. The object of the strips of leather shown in the drawing is to prevent the frames from slipping and falling down. These can be nailed on to suit the thickness of various heddle frames. We found this leather to be more durable, and at the same time it does not damage the soft wood of the frames.

We have been using this method of storing our frames for some time and we think it is the best system we have ever used. We have 10 of these racks and they conveniently care for heddle frames for 1,000 broad looms, running on about 80 different styles.

We recommend it to those who do not have a good system of storing their frames.



How to Make Time Study Tests on the Roving Frame

A Practical Procedure with Practical Results

By Furman H. Martin, Jr.

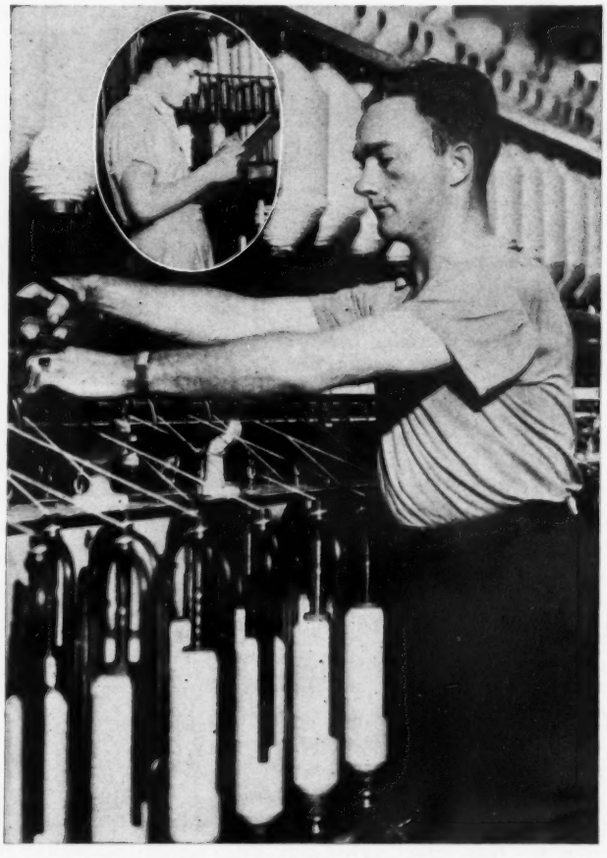


Photo of roving frame tender, courtesy Avondale Mills. Inset photo of time study man made for COTTON at Georgia Tech by Paul Robertson.

A TIME STUDY is usually employed when it becomes necessary to determine accurately the amount of work being done by a machine, a group of machines, or the operative of these machines. This time study may be made to determine why the machines are not producing as they should, and at the same time to discover some means of overcoming present deficiencies. In addition, time studies are made frequently to ascertain the work load for new machines, or for present machinery where old set-ups have been changed.

Several methods are now in use for making time studies. One of the methods used is to have some person to record all of the operations of the machine, operative, or both, using a stop watch, and making the study for a given period of time. The operations requiring intervals of time are then calculated as a percentage of the total time required for the test. Extreme accuracy is necessary in making the readings so that the total time may be accounted for. The method to be described is unsuited for tests where more than five roving frames are to be checked over a period of eight or ten hours when the time study of the operative is to be taken also.

Making the Time Study

The method we have evolved, though not new in principle, is accurate and requires no special skill in handling a stop watch. In fact, it is not necessary nor even desirable to use a stop watch. Any watch that has a second hand and that is easy to read at a glance is suitable.

Rule several sheets of paper into vertical lines, having one column for each machine and one for the operative. These sheets are attached to a clip board or some sort of board for easy handling; the watch and the board with paper are the only materials needed to make the test.

It is best to start the test at the same time that the operative begins work and to run the test until the operative finishes work for the shift because during the working day different conditions arise that will tend to give a misleading conclusion if the test is taken only for a short period, whereas if the entire working day is included the complete story will be recorded.

The observer begins the test by recording in the vertical columns of his test sheet the frame number that column is to represent and the column for the operative. Then in each column he records the time the test begins. The status or operation of each machine is indicated by a letter representing the condition: *R* for running, C for creeling, *P* for piecing-up, *D* for doffing, *Cl* for cleaning, *Rt* for resting, *W* for walking (the latter two for the operative), and any other symbols which seem appropriate for the test.

The time is indicated first in hours, then in minutes, then in seconds, followed by the letter indicating what the machine is doing at the time, i. e., 10:26:35 *R* [running]. For the sake of accuracy, it is better to *read* the time in the reverse order when looking at the watch because the second hand will have moved on otherwise and a true reading will not be secured; for example, the foregoing time would be read from the watch 35: 26: 10 R, but would be recorded in the regular manner. With a little practice in reading in this manner, the tester will soon be able

to do so with ease.

As the test proceeds and as changes occur, the exact time of the *change* is recorded in the correct column pertaining to the frame or operative. If a machine is running and is stopped for some reason, the time and cause of the stop are recorded. When the frame is started again, the same notation is made with the letter *R* following the time. Simple subtraction of the previous notation will give the length of time the machine was in a certain condition. These notations are kept, as stated previously, for the entire working day of the operative. When the test is stopped the time is again recorded in each column. The difference between the starting time and the stopping time must be accounted for if the test is to be of any value.

After the data for the test have been recorded, the time interval of each operation may be secured by subtracting the successive recordings. The time, by frames, used in any particular operation is added together and figured as a percentage of the total time the frame was tested. From the average of all frames, the percentage of time for running, doffing, creeling, etc., is figured for the set.

If so desired, the total standing time may be taken as 100 per cent and the different causes for other operations figured as a percentage of the total standing time.

From the operative's column the percentage of time spent in walking, creeling, doffing, etc., is readily obtained. If the tester wishes to know the number of ends down per 1000 spindle hours, it only requires his observing the number of ends down each time the operative pieces-up and making a note of it. Of course, the number of stops for ends down is taken directly from the readings of piecings-up, but occasionally more than one end is down at a time.

The test will also show the length of time required in doffing, average time required to start up the frame, and other valuable data pertaining to the operation of the machine.

The right-hand column in the "Time Study Data" table is not recorded as the test is being made because the tester has enough to do watching all of the machines and the operative. This column is calculated after the test is completed; for instance, following the number of piecings-up, as marked by the letter *P*, the frame started at 9:15:00, or at a quarter past nine o'clock, and ran until 9:49:00, a total of 34 minutes. At 9:49:00 an end was down but the frame was running again at 9:50:15, which meant that one minute and 15 seconds were required to piece-up. The frame then ran until 9:56:40 before another end came down. This time, due either to the breakage of several ends or because the operative was otherwise occupied, it required until 10:00:00 to piece-up, a lapse of three minutes and 20 seconds. This subtraction is followed through the entire recorded data and totaled, as will be seen, as 46 minutes and 15 seconds for piecing-up over a period of eight hours. This is done for each operation.

According to the finished report, over a period of eight hours the frame ran five hours, 42 minutes, and 55 seconds. It was overhauled for two minutes and 20 seconds, and it required one hour, 28 minutes, and 30 seconds to doff it. As explained in the footnote, this was due to the other frames giving trouble and the operative could not doff the frame immediately.

The percentages are figured because they are more comprehendable, giving at a glance the results of the frame's work.

As a further record, the tester has figured there were 15 stops for piecing or an average of 2.6 stops per hour of running time.

Frame No. 21 ———— Plant

TIME STUDY DATA

9:15:00	R	START	
9:49:00	P		34:00 R
9:50:15	R		01:15 P
9:56:40	P		06:25 R
10:00:00	R		03:20 P
10:09:00	P		09:00 R
10:18:00	R		09:00 P
10:20:00	P		02:00 R
10:23:45	R		03:45 P
10:40:25	P		16:40 R
10:42:50	R		02:25 P
11:03:15	P		20:25 R
11:07:00	R		03:45 P
11:45:00	P		38:00 R
11:48:00	R		03:00 P
12:00:00	STOP*		12:00 R
12:30:00	START		
12:36:00	P		06:00 R
12:37:40	R		01:40 P
01:01:45	P		24:05 R
01:05:15	R		03:30 P
01:07:25	P		02:10 R
01:09:30	R		02:05 P
01:53:15	P		43:45 R
01:58:25	R		05:10 P
02:34:30	D		36:05 R
04:03:00	P		1:28:30 D**
04:05:55	O		02:55 P
04:08:15	R		02:20 O
04:13:20	P		05:05 R
04:14:40	R		01:20 P
05:06:00	P		51:20 R
05:08:00	R		02:00 P
05:37:40	P		29:40 R
05:39:00	R		01:20 P
05:45:00	STOP		06:00 R

*Frames stopped half hour for operative to lunch.

**Unduly long time for doffing caused by other frames running poorly the day of the test so that the operative could not get to this frame.

Running	5:42:55
Overhauling	02:20
Piecing	46:15
Doffing	1:28:30
	8:00:00 Hrs.

Running	71.44% of Time
Overhauling	.48% of Time
Piecing	9.64% of Time
Doffing	18.44% of Time
	100.00%

15 stops for piecing.
5:42:55 hours running time.
2.6 stops per hour of running time.

A Description and Study of MACHINE PRINTING of TEXTILES

Article 3—Engraving the Rolls; Arranging the Colors for Printing; Some Common Printing Troubles . . . .

By C. Norris Rabold

Chief Chemist, Union Bleachery, Greenville, S. C.

The Engraving of the Copper Shells

One cannot well discuss the subject of printing without at the same time mentioning something in regard to the engraving of the copper shells. While this is a technical and specialized art in itself and one that would require considerably more knowledge than the writer possesses to discuss in detail, engraving and printing are so closely linked to each other and so mutually dependent on each other, to produce the fine effects which characterize modern machine printing, that a brief description of the various types of engraving is necessary in order for the reader to appreciate the results obtained.

There are three types of engraving commonly employed—hand engraving, machine engraving and pantograph engraving. The medium upon which these forms of engraving are carried out are copper shells. These shells are made of solid copper and have inside them an offset approximately ½-inch wide and ¼-inch deep running the entire length called the key. This key fits in the slot cut out in the mandrel, on which the roll is mounted when placed in the print machine. It should be added that the bore or inside of this shell is slightly larger in diameter on one end than the other and that the mandrel is also tapered from one end to the other so that when the roller is mounted on the mandrel with the key of the shell fitting in the keyway of the mandrel, they should work as one unit, with no loose motion.

Courtesy, The Textile-Finishing Machinery Co.

A battery of printing machines in a prominent southern plant; showing the "off-side" of the machines .

The copper shell is approximately 1½-inch to 2 inches in thickness and will range in diameter from 5 to 6 inches. In a multi-color pattern where more than one shell is to be employed they are all usually of the same size with such exceptions as shall be mentioned later.

Today, many shells are plated with a thin layer of chromium after engraving. This prolongs their working life from three to four times of that of a shell which has not been so plated. The layer of chromium resists the pressure of the doctor blade which wears down the roll until the engraving becomes too shallow to print properly.

At one time all copper rolls were engraved by hand. The design was traced upon the roller and the engraver then went to work to cut out the portions necessary, by means of a sort of triangular pointed punch called a "burin". It can easily be seen that in a pattern where more than one roller need be engraved and where the design is quite intricate, the hand labor necessary would be enormous, therefore today machine and pantograph engraving have almost entirely superseded the hand method, which is employed largely for touching up rollers engraved by the other two methods, or to repair imperfections or damage.

In the machine method one repeat of the design to be engraved is traced upon a small roller of softened steel, known as the "die". The die in circumference must be a multiple of the circumference of the copper shell to be engraved so that a certain number of repeats around this circumference will join up exactly. It also must be wide enough to take one impression of the design sideways. The tracing on the die is engraved by hand and the die hardened by heat treat-

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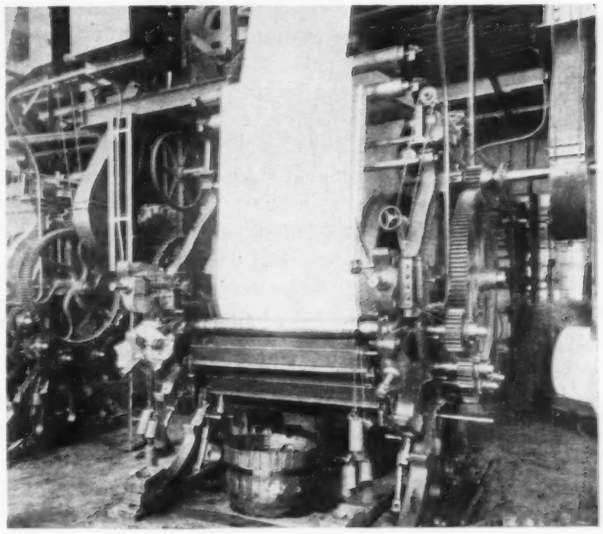
The first article in this series, on page 53 of the March issue, gave a general historical background of textile printing; the second installment, on page 78 of the April issue, described the modern textile printing machine and its various parts and how they operate. Copies of previous installments are available to subscribers upon request.—THE EDITORS.

ment. It is then placed in a machine known as the "clamming" machine and brought in contact with another small roll of softened steel known as the "mill". These two rolls are brought in contact at first with light, but subsequently gradually increasing pressure and rotated together. This rotation is continued until the mill has taken the impression, in relief, of every part of the design engraved on the die. Then the mill is heat-treated to harden it the same as the die. It is then mounted in the engraving machine and brought in contact with the copper roll which is to receive the final impression. The mill and the roll are then rotated in contact with each other with gradually increasing pressure until the copper roll has had depressions made in its surface exactly corresponding to the raised portions of the design on the mill. When one engraving around the shell has been completed, the position of the mill is changed and it is set so that its side repeat matches exactly the part of the copper roll already engraved and the process is repeated until another section of the copper roller has received the impression of the raised portion of the mill. This process is repeated until the entire length of the copper shell has been engraved. Mills may vary anywhere from ½-inch to six inches in width and three to nine inches in circumference.

Pantograph engraving is somewhat difficult to describe without a view of the machine itself in actual operation. First, the design is engraved on a zinc plate, care being taken to have the lines of the engraving smooth, and placed in position on the table of the pantograph. In the case of a multi-color design where more than one roll is to be engraved, each portion of the plate to go on a different roll is colored, according to the shades of the pattern. Overhead, mounted in bearings, is the roll to be engraved which has previously been coated with a mixture of wax and resin. Immediately in front of the roll is a bar connected with a tracing needle, mounted over the zinc plate on the table and also with a foot pedal. On this bar are a number of diamond points, the number depending upon the number of side repeats of the pattern. The operator places the pointer on the table on one portion of the design, presses down the foot pedal which brings the diamond points in contact with the roll and then follows the lines etched on the zinc plate back and forth with the pointer, which causes the diamond points to make a corresponding mark on the copper roll, cutting through the varnish and into the roll.

When all parts of the zinc plate in one color have been covered by the operator, all of that portion of the design has been cut into the copper roller, and if there is a longitudinal repeat in the design, the roller position is changed, and the operation repeated. Otherwise, this roller is removed, a fresh one substituted and the same operation carried out with a second color on the zinc plate. Upon leaving the pantograph, these rollers are rotated in a bath of nitric acid or ferric chloride which attacks the copper where it has been exposed by the scratching of the diamond point. Depending upon the strength of the acid and time of immersions, the copper is removed to the proper depth, after which the roller is taken from the acid bath, the varnish removed, and the roller polished. It is then ready for the print machine.



Courtesy, Rice, Barton & Fales, Inc., and Revere Copper and Brass Incorporated.

A four-color printing machine. Note the "lapping" on central cylinder, the "back grey cloth" between it and fabric, and "color box" below the print roll

Since the copper roller and engraving are expensive, several ingenious schemes are now in use to decrease the number of rollers necessary when multi-color patterns are to be printed. Thus, on one roller, part of the design may be engraved in as many as three depths of engraving, allowing three different shades to be printed. If the heaviest shade to be printed is red, the printing paste would be made so that the proper shade of red would be given by the deepest engraving. If the next depth were only half the first, naturally the amount of color adhering in it would only be half as much, and the resultant shade on the cloth would probably be deep pink. If there were still a third depth of engraving, say a quarter of the original, it would retain only a fourth as much color and probably print a light pink, all from the same roll and the same color paste. Rollers also are engraved so that a portion of the engraving on one falls over a portion of the engraving on another, so if one roller in the machine were printing blue and another one yellow, the portions where they overlap would print green and the two rollers would be producing three different colors. Of course, this can only be done where the colors and design of a pattern permit.

Arranging the Colors for Printing

In setting up a multi-color pattern in the print machine, it is a broad general rule that the rollers printing the lightest shades are put in the machine first, followed by those printing the medium, and last the dark shades. Like most rules of the sort, this one is subject to some exceptions. The purpose of such an arrangement is to prevent one color carrying over into another and altering the shade or "dirtying" the print. Where any deposit of color is placed on the cloth by an engraved roll, before the color has a chance to be absorbed by the cloth and while it is still on the

surface, the cloth has already reached the nip of the second roll and is being printed by it, so there is an unavoidable removal of color from the surface of the cloth, due to its smearing slightly on the second roll. This is not usually sufficient to blur the impression but, due to the rapid rate at which print machines travel nowadays, printing 100 to 120 yards per minute, it can be seen that in a short time, sufficient color can be carried from one roll to another to alter the shade, especially if the first roll were printing, for example, a dark blue and the second roll a light yellow. This general rule that light shades should be printed before the darker may be broken in such cases as where the darker color forms only a small part of the design and may consist of only a few dots or very fine outline and so does not have much coverage, whereas the lighter color covers a large area of the design, and in consequence would be depositing considerable color on the cloth.

Certain colors have a tendency to carry over more than others. Where this is the case, and the following color in the design shows a tendency to go off shade in a short period of time, a "gum roller" may be placed between the offending color and the next engraved roller. A gum roller is a plain engraved copper roll, working in a dilute gum or starch paste, and it serves the purpose of cleaning off the top color on the cloth and at the same time forcing in the color printed by the preceding rollers.

There is another exception to the general rule that light colors should be printed first, medium shades next, and the heavier shades last, and that is in connection with patterns employing a "blotch" roller. The blotch roller is one that deposits very large masses of color on the cloth and its position is invariably last, whether the shade is light or heavy. It is placed there for several reasons, one because of the fact that it puts such large masses of color on the cloth, which would invariably carry over and alter the shade of the following colors. Another, due to the stretching of the cloth in the machine, the printer depends on the blotch to fill in any uncovered portions of the design. The blotch roller is also an exception in that, while all the other rollers in a given pattern are of the same size, it may be slightly larger in diameter to take care of the cloth stretch.

When heavy shades are printed by the blotch, in some cases they show a tendency to come up "mealy" or uneven, due to the fact that such large masses of color are deposited on the cloth that unequal absorption takes place over the area covered. Where this occurs, it is common practice to run a "crush" roller immediately after the blotch in order to force the heavy deposits of color into the cloth evenly. The crush roller is similar in every detail to the previously mentioned gum roller. It is also used in certain instances with other engraving than a blotch, where the cloth, due to construction or preparation is not especially absorbent.

"Drag" rolls are used to bring the print cloth and back-grey together against the central cylinder before they meet the first printing roller. Certain constructions of cloths show a tendency to wrinkle or crease warpwise, if they do not have sufficient tension on them, or to "bunch up" in the nip of the first printing roller, which gives rise to imperfect registration.

Courtesy, Rice, Barton & Fales, Inc., and Revere Copper and Brass Incorporated.

An eight-color printing machine, shown with only four rolls in use. After printing, the cloth travels up into a box-like arrangement for drying. In the background are the rolls and rolls of "back grey cloth" and fabric . . . . . .

The drag roll—a plain non-engraved roll—is mounted in the same manner as a printing roll, except it is not fitted with a box-gear and so cannot be driven from the crown-wheel. It is turned by its pressure against the central cylinder and so exercises a pull or drag on the print cloth and back grey which keeps them smooth and taut as they pass on to the printing rollers.

Some Common Printing Troubles

In numerous cases, because of cloth construction, engraving or type of color, it is necessary when putting a pattern in the machine to force the mandrel and shell up against the cylinder with such enormous pressure that an actual bending takes place between the two bearings on either side of the machine. This of course means that there is more pressure on the sides of the copper shell than in the center and if the pattern were to be printed while the shell was in this bowed condition, it would register lighter in the center than on either side. When this condition obtains, the printer overcomes it by the use of "packs". Packs are narrow strips of back grey wound around the lapping on the cylinder, a sufficient number of them be-

(Continued on page 101.)

The Why and Wherefore of Fabric Designing

By T. O. Ott, Jr.

(Article 3)

THIS, the third article in the series, is devoted to a study of the basic weaves, their classification, and uses in different fabrics. The first article appeared on page 56 of the January 1938 issue and gave the procedure for making a fabric for which there is no sample. The second, on page 64 of the March issue, was a case study of fabric analysis for duplication and a method of computing costs. Copies of previous installments will be furnished on request . . . . . .

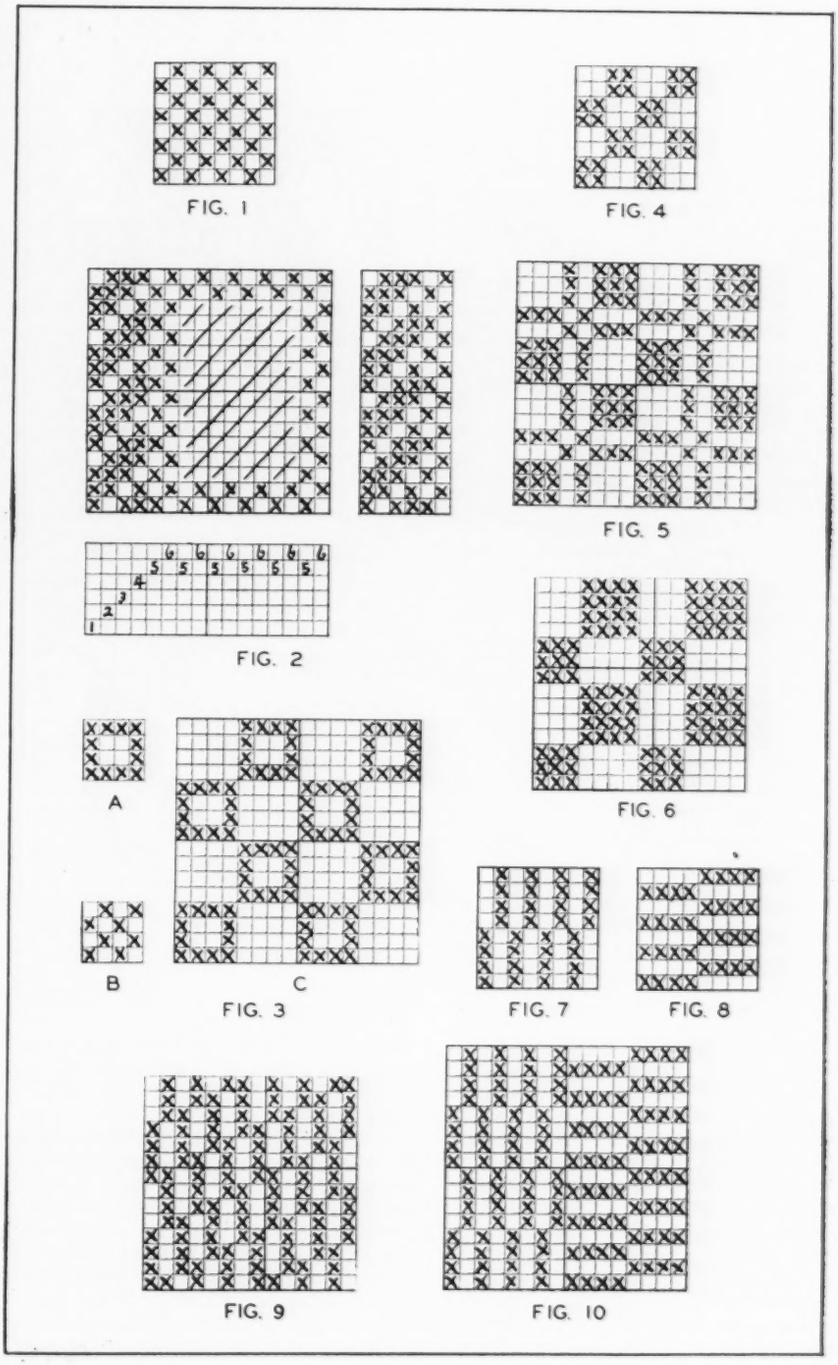
IT IS NECESSARY FOR EVERY DESIGNER to know the principle of the basic weaves, and the purpose for which these are used. A designer, after experience, can reproduce fabrics from samples, and he can often set up specifications for fabrics for which there are no samples, but a definite knowledge of the basic weaves is necessary if the designer is to broaden eventually into the field of stylist. He must know the classification of different weaves.

The classifications given in this article cover only the most elementary weaves and some of their uses. Highly organized weaves and constructions such as leno weaves, piques and Bedford cords, corduroy and pile weaves, and multiple fabric weaves will not enter into our outline of basic weaves. We are here merely attempting to give the beginner a skeleton framework on which to build when he later studies specialized fields of design. He should be able to recognize many characteristics of these basic weaves in many of the more complicated weaves that will later be studied.

I. *The plain weave; tabby, or I/I method of interlacing.*

Not only is the plain weave widely used for the effect that it produces in itself but it is very useful in combination with many other weaves to add strength or variety to a fancy weave. This weave is characterized by a maximum number of interlacings of warp and filling for a given area of fabric. All other weaves have fewer interlacings per unit area and hence less firmness for the same construction. By noting the point paper design given in Fig. 1, it will be seen that the first end on the left begins at the bottom with a raiser or "up" on the first pick then a sinker on the second pick and the second end in the design begins with a sinker on the first pick and a raiser on the second pick. This is one repeat of the I/I (one up one down) or tabby or plain weave. Nearly always more than one repeat of weave is shown in a design in order to bring out the effect of repeating the weave in the cloth.

The plain weave or basket weave order of interlacing is used in a



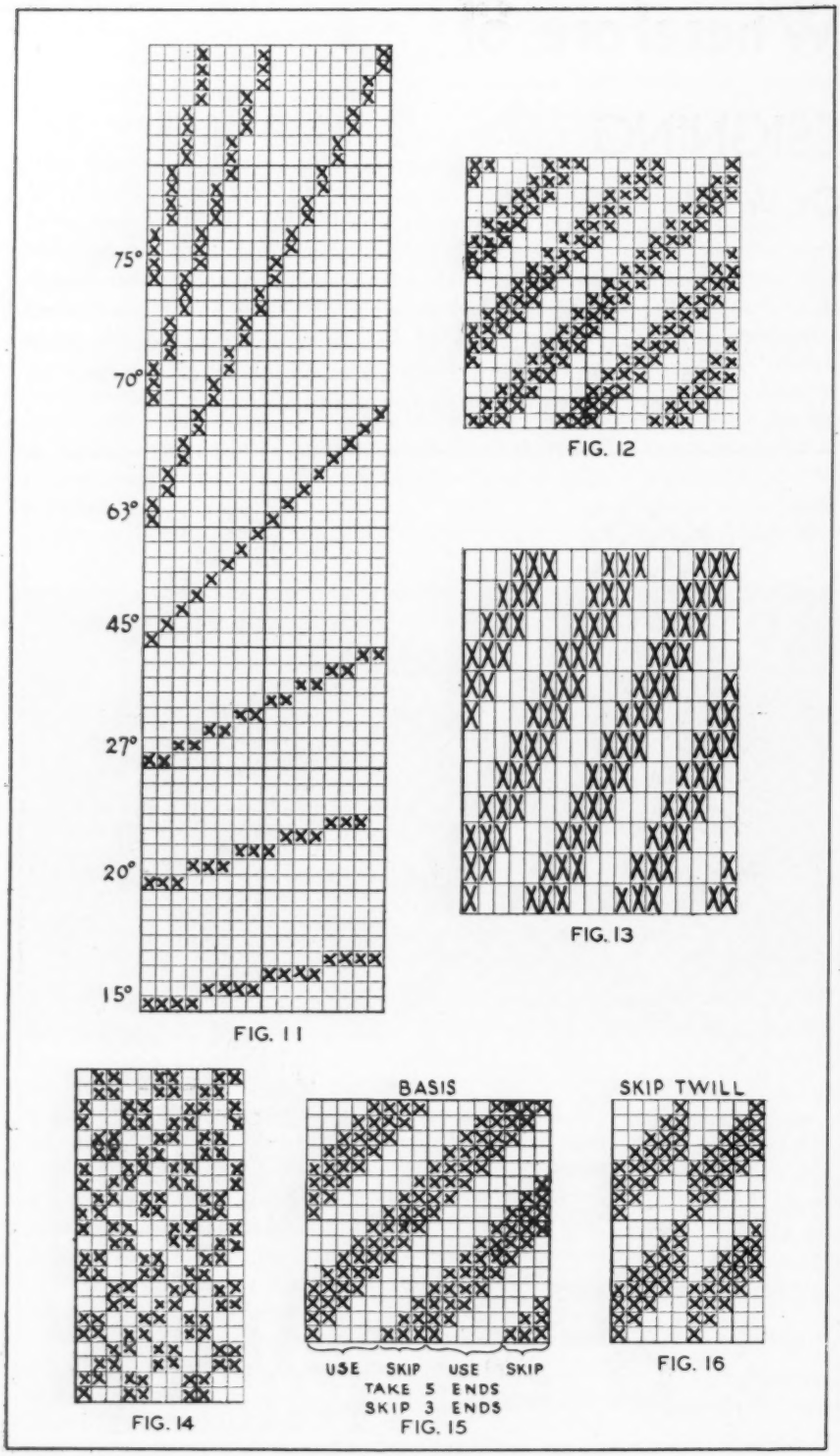


FIG. 11

FIG. 12

FIG. 13

FIG. 14

FIG. 15

FIG. 16

large variety of fabrics from ginghams to duck or canvas and also to a large extent to give contrast and variety with other weaves. The one up one down or plain weave may be produced on the simplest of looms, the plain loom, as well as on many of the most intricate of looms. The chief characteristic of this weave is the maximum of interlacing possible for a given number of warp ends and picks per inch. The large variety of fabrics produced in this weave obtain variety not from the weave but from the material used and the construction or texture of the fabric.

The plain weave is shown in Fig. 1.

In practice the plain weave has so simple a construction that the designer may well represent it by a few repeats in such a way that large areas need not be dotted in. This practice may well be followed whenever possible with numerous other weaves. In Fig. 2 we indicate a combination design where weaves are only partially indicated.

Very often figures in fancy weaving are repeated on a plain weave order to give a pleasing effect to the design. In this case then the complete design must have two figures representing raisers and two figures representing sinkers just as the plain weave has. Of course, in good practice it is necessary that a warp figure come next to a filling figure or some contrasting space in order to present an orderly appearance. In Fig. 3 is shown a simple representation of a design at (A) repeated in plain weave order (B) at (C).

Here we may mention basket weaves and some of their combinations as they are closely related to the tabby weave. The chief difference in the plain and the basket weave is that in the plain weave only 2 ends and 2 picks form a repeat of the weave while in the basket weave a minimum of 4 ends and 4 picks are needed to repeat the order of interlacing. Basket weaves thus repeat on from 4 ends and 4 picks up to any practical number. In Fig. 4 is shown the simplest form of basket weave repeating on 2 ends and 2 picks.

Under basket weaves we may classify many variations, especially in the field of fancy weaving. Several of these are represented here as shown in Figs. 5 and 6.

Rib weaves form another class of weaves basically the same as the plain weave. Rib weaves consist of long floats of warp in a warp rib fabric and long floats of filling in a filling rib fabric interlacing in the tabby or plain weave order. Thus, in a warp rib fabric one warp end may float over two or more picks and under two or more picks while the next end will reverse the order of interlacing. This would be true of the picks in a filling rib fabric. Rib weaves may be made to run in a diagonal direction by stepping up the floats on each adjacent end or pick as the case may be. The rib weaves are basically the same as basket or plain weaves in the character of interlacing but are given character and interest by using finer sets in warp or filling in order to give more prominence to the rib. Such weaves contain several picks or ends interlacing in the plain order; in some rib weaves the interlacing cannot be made on a plain loom but a dobby or head motion must be used to interweave as desired. Two-harness looms may be used where the capacity of the harness or cams are not exceeded. Some examples of rib weaves are shown in Figs. 7, 8, 9, and 10. Fig. 7 is an example of a warp rib weave; Fig. 8 the filling rib weave; Fig. 9 the diagonal rib weave; and Fig. 10 the combination rib weave.

By using heavier yarns in one direction than in the other and by increasing the number of ends over

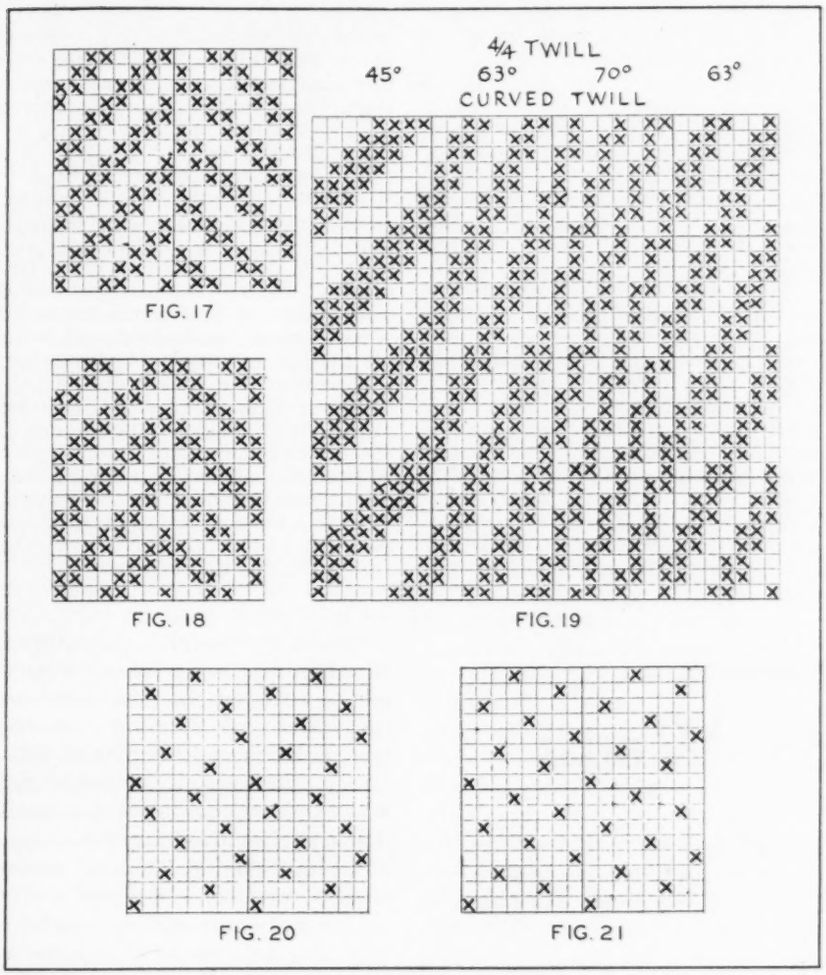


FIG. 17

FIG. 18

FIG. 19

FIG. 20

FIG. 21

the number of picks or vice versa the rib may be given greater prominence in one direction than in the other. A great variety of pleasing effects may be obtained with the use of the proper constructions.

II. *The twill weave method of interlacing.*

The twill weaves are characterized by a diagonal method of interlacing. Various angles may be obtained for the diagonal by bringing raisers or sinkers of the weave over and under in a diagonal manner. This is accomplished by stepping up each successive end so that raisers touch each other and form an unbroken line in a diagonal line. By changing the amount each raiser is stepped up on each successive end different angles of twill may be formed. The basic twill weave is a 45 degree twill formed in a fabric having the same number of ends and picks per inch. All other twills will be square designs or off square designs adapted to various constructions. Twill weaves are part of a large group of weaves from the common drill or three harness twill made on a cam loom, to a diagonal repeating the full width of the fabric and made on the Jacquard loom. Twills lend themselves to a multitude of changes to give uniqueness and character to a weave. Many of the fancy combinations such as the broken twill and skip twill may be made on a cam loom on few harness, but the best effects are worked out for fancy fabrics on the dobby loom. In many cases more than four and less than 20 harness are sufficient to give the best results. One of the most unique characteristics of twill weaves is that the twill line is more prominent if it runs in the direction of the twist of the yarn. Thus, in left hand twills the twill line runs from right to left and the yarns are "S" twist. In right hand twills, the twill lines run from left to right and the yarns are "Z" twist. Some of the standard twill construction lines are shown in Fig. 11.

As can be seen from the chart (Fig. 11) the 45 degree twill line is constructed by moving over one end on each successive pick for the interlacing. Since this chart is based on an equal number of picks and ends per inch in the fabric, any variation from this construction in the fabric will throw the angle out from the angle on the design paper. For example suppose we have to run a 45 degree twill on a fabric with 60 ends and 30 picks per inch, we would have to lift two ends of warp over one pick of filling in order to get the correct angle in the fabric. The chain draft or the harness draft may be adapted to control the angle of the twill lines. Regular twill on a square construction is shown in Fig. 12. Twill on an off square construction is shown in Fig. 13.

On many fancy effects the twill weave is used in combination with a fancy weave running in the same direction as the twill line and appearing on either the warp floats or the filling floats or both. Care must be exercised to make these fancy weaves repeat on the same number of ends or picks as the foundation weave or multiples thereof An example of combination twill is shown in Fig. 14.

Skip twills, another variety of fancy twill, is obtained in a different manner by taking a regular twill and reconstructing it by building up a new design by taking a certain number of ends or picks and skipping a certain number until the weave repeats properly. This type of weave is shown in the designs in Figs. 15 and 16. Fig. 15 is the basis of the skip twill construction, and Fig. 16 is the skip twill design.

Fancy twills of varied constructions may be obtained by breaking the twill line and running the twill line in the opposite direction. This may be varied by either making a clean break and running the warp floats in the place of the filling floats or by continuing on the same line of raisers or sinkers in a new direction exactly reversed to the first section thus making a pointed twill. Curved twills are constructed by combining sections of regular twills each section having a different angle. The designs shown are self-explanatory. Fig. 17 is an example of the broken twill; Fig. 18 the pointed twill; and Fig. 19 the curved twill.

III. *The Satin Weave or Method of Interlacing.*

The satin weaves may be considered as a distinctive variation of the twill weaves; however, due to their appearance and construction they may well be considered a separate class of weaves. These weaves are characterized by an almost complete cover of the fabric by warp or filling as the fabric may be either warp or filling face. Due to the scattered interlacings of these weaves a special system of locating these interlacings is used.

The first interlacing is made on the first end and the first pick to start, and the interlacing on the next pick is moved over so many ends according to a counter. The counter used and the number of harness on which the weave is to be made have a definite relation. The counter cannot exceed the number of harness to be used and

it is usually an even divisor of the number of harness plus one. Thus, for an 8-harness satin, 2 and 4 are even divisors of 8; therefore 2 plus 1 is "3," and 4 plus 1 is "5," each of which is a suitable counter for an 8-harness satin.

To locate the point of interlacing on each successive pick the following method is used: With "5" as the counter and starting with the first pick, $1 + 5 = 6$ (interlacing of second pick); $6 + 5 = 11 - 8$ (limit of harness) $= 3$ (interlacing of third pick); $3 + 5 = 8$ (interlacing of fourth pick) $8 + 5 = 13 - 8$ (limit of harness) $= 5$ (interlacing of fifth pick); $5 + 5 = 10 - 8$ (limit of harness) $= 2$ (interlacing of sixth pick); $2 + 5 = 7$ (interlacing of seventh pick); $7 + 5 = 12 - 8$ (limit of harness) $= 4$ (interlacing of eighth pick). The design for this satin regular twill is shown in Fig. 20.

A variation of the satin weave is made by taking certain picks or ends of a regular satin weave and skipping others; or by taking picks and raisers in some broken order. Fig. 21 is an example of the irregular twill. It is an 8-harness satin where 4 picks were used just as a regular 8-harness satin and the next 4 were reversed to the same 4 of the regular 8-harness satin.

Satin weaves are produced in the simplest 5-harness weave on the cam loom which is high speed and very efficient for this particular weave. Staple fabrics such as auto headlinings, drapery linings, and other warp or filling faced staples could not compete in the market when made on slower more complicated looms. Many fancy satin weaves of 6, 8, 12, and 16 harness are used in combination with the plain weave, the basket weave, and the twill weave to form a fancy weave of original effect. Warp faced and filling faced satins are used and made in a great variety from the common 5-harness weave to those used in combination to form fancy Jacquard patterns for table linens to furniture covers.

In general it may be said that no hard and fast rules can be laid down for the adaptation of any weave or fabric to any loom. The market and competition and uniqueness of any combination of weaves must be worked out with all factors in mind. Today when so many of the mills want to produce everything, thinking that the other man's field is the greenest, much grief may come from trying to produce fabrics upon looms that were never intended for such work. This is a most common fault of the designer venturing into a new field foreign to his experience.

Some General Comments on

Sizing Rayon Warps

By Phil A. Ment

THERE is much to be learned concerning the sizing of rayon warps. It is a broad subject and the questions asked on it are even broader. No set rules can be given that will apply to all conditions, and when two men are discussing the subject, though they be running the same fabrics, their methods of procedure will often be different, yet along the same general channels. I have asked many questions on this subject myself, and in return have been asked many more.

The following are typical questions asked in connection with the sizing of rayon warps, both viscose and acetate, and the answers given represent simply the opinions of the person questioned. As far as possible, related factors have been brought out and their connection with the problem discussed. In the main the answer is basic; it is suggested, however, that anyone interested enough to check the author's statements use the answers for guidance, varying the procedure according to his own local conditions.

The first question pertains to the proper amount of size and moisture which should be put into a rayon warp at the slasher. As this would mean little without a specific case, we will take a 9,000 end, 45¾-inch rayon sateen warp, first quality yarn, 100 denier 40 filament viscose, 37 dent loom reed, 5 ends per dent, 14 harness, and 64 picks per inch.

Section beams are to be used, the warp sheets being threaded into a 5-cylinder warp sizer capable of being run at a maximum speed of 35 yards per minute.

At this point we encounter one weakness in the average technical question regarding warp sizing. We rarely know what type quetsch is used. So, before proceeding further, it becomes necessary to assume certain conditions, and the following discussion is in order.

Quetsch, or squeeze, must be considered with respect to the manner in which the warp sheet has been subjected to the size bath. In the case of viscose yarns, where the yarn itself readily absorbs the size solution, a single nip squeeze roll contact is generally sufficient to impregnate the yarn with enough size.

By single nip we mean the "straight through" threading, whereby the warp sheet simply passes between two rotating rolls, the lower roll running into the size bath and delivering the solution to the yarn. The upper roll acts as a leveling medium, squeezing in the required amount of size and retarding the influx of an excess of solution.

Either the upper, lower, or both rolls may be covered with suitable roll coverings of the jacket or blanket type. Or, the rolls may be simply bare rubber. In either case, the prevailing condition largely governs the make-up of the size solution.

If the rolls have a soft, spongy covering, such as might be formed by several layers of wool blanket, then the size solution suggested should be lighter than one recommended for a set of bare rubber-covered rolls.

If the warp sheet is to be threaded through the size solution, then a lighter solution is suggested than if the warp sheet is run straight through. Personally, we favor the two high roll system of squeeze, with an immersion roll placed in front of the bottom roll. For threading straight through, the immersion roll is not used, but if it is desired to run the warp sheet through the solution, the immersion roll is depressed to force the warp sheet into the size bath. This set of conditions obviates the necessity for reversing the rotating direction of the rolls

when using alternately the straight through method and immersion threading.

To get at the essentials of a good size mixture, gelatin is suggested as a base, complemented with suitable softening, penetrating, and preserving agents. Only the best grade of gelatins should be selected, and the choice of softening agents is a matter of personal preference, there being innumerable excellent items on the market.

Softeners, Penetrants, and Preservatives

Generally, softeners are selected from the group of sulphonated vegetable and mineral oils. By these we mean sulphonated castor, olive, cocoanut, or similar oils. This group is thought of as softeners; but in our opinion are actually wetting-out agents, and hereafter will be referred to as such.

An actual softener exerts a partial plasticization of the yarn, when wet, this property diminishing as the yarn is dried. Glycerine, or suitable glycols, function in this manner.

Penetrants are, to us, yet in the experimental stage, but it has been found that the sulphonated fatty alcohols are of definite aid in the level distribution of size on yarns.

Preservations should not be necessary, but if a preservative is desired, some reputable vender of yarn oils should be consulted.

The size mixture now stands as follows: gelatin, sulphonated oil or wetting-out agent, softener, penetrant, and preservative. To this we add water, and only soft water should be used. Soft water is an essential to good sizing; otherwise precipitates are formed which become attached to the yarn and are noticeable later in dyed pieces.

The Size Mix

As to the proportions of each element of the mix, it is suggested that a basic mixture be prepared and variations from this be made in accordance with local conditions. Such a mixture is as follows:

Gelatin	40 pounds
Wetting-out agent	8 pounds
Softener	6 pounds
Penetrant, Preservative	To be used as directed by manufacturer
Water	40 gallons

For average sizings, such as the one described above, it is suggested the mix be diluted by adding 120 gallons of water. This means that to 160 gallons of water there are 40 pounds of gelatin and the aggregate may be described as a 4 per cent mix, the amount of gelatin being taken as the basis for this figure. Under certain conditions, such as low sizing speed, soft quetsch, efficiently operating looms, low loom speeds, and the like, this mixture may prove entirely suitable. However, we cannot guarantee such a result, but we again suggest that any interested party consider his local condition and use the basic mix outlined with whatever volume of water, between 40 gallons and 160 gallons, that gives the best operating results.

Other questions often asked are *What would be considered the proper amount of size and moisture in a warp of about 5,000 ends, 45 1/2 inches wide, taffeta weave, with 88 picks per inch;* the same question on 9,000 ends of 100 denier, etc. *What would be considered the proper amount of size and moisture in all the named constructions,* (usually several are given); *and what would be considered the proper percentage of stretch in the various warps?*

It is realized that to answer each question in detail would not only be inviting denials and doubt, but may also lead to horrible mistakes. To do proper justice to such inquiries, one must make a first-hand detailed study of the local conditions. It is, therefore, impossible to give exact data that will prove entirely suitable. We are glad to offer such general suggestions as may apply to almost any mill.

The basic solution previously outlined applies to both viscose and acetate yarns and may be used on both by merely varying the amount of water. Acetate yarns require immersion of the warp sheet for best results, and the size solution should roughly be twice the strength of a solution used on viscose yarns.

Sizing speeds for acetate yarns are suggested as being less than 18 yards per minute on taffeta, satin, and twill weaves; the speeds may be higher for crepes. Viscose yarns may be sized quite well as 35 yards per minute, and in some cases even higher. Again the local conditions should govern these details. Viscose yarns seldom, if ever, require other than a single nip, straight through, threading of the warp sheet.

It is essential that the minimum amount of size be applied, the governing factor in this being the results achieved in the weave room—and these alone. Finishing of the woven goods also relates, but there is no avoiding the fact that first of all the warps must run well in order to produce quality fabrics.

To determine the proper amount of moisture that should be left in a sized warp, it is suggested the regain property of the yarn in question be established. To do this, bone dry a sized yarn and then expose it for a fairly substantial period in the weave room atmosphere; from the resulting weight calculate the regain. Hourly readings of the yarn weight as it absorbs moisture will indicate the rate of regain. This regain figure should govern the amount of moisture that should be left in at the size machine.

Stretch is eternally a bone of contention. The lowest possible stretch is recommended but it is known that wide departures from this are continuously being made, and with no readily visible detriment to the yarn or finished goods. The fact that slasher manufacturers are continually developing machines for minimizing yarn stretch should be enough warning to discourage the practice of excessive ly stretching warp yarns. The writer strives to keep as low as 3 per cent on acetate warps and as close to this as possible on viscose yarns.

Again we wish to emphasize that unless specific conditions are known it is impossible to give details that would be as valuable as when all factors are understood and taken into consideration. The information as given has proved workable in our own instance. There is, however, almost no depth to which a discussion on rayon sizing may be carried.

Georgia Mill Men Meet at Sea Island

Gov. Rivers, John C. Gall, and Paul McKenney are featured speakers; entertainment program excellent; Fuller E. Callaway, Jr., is new president

THE ANNUAL "house party" at The Cloister, Sea Island, Ga.—more formally known as the annual convention of the Cotton Manufacturers Association of Georgia—was held this year on May 19 and 20, and was, as usual, a complete success in every respect. The official program, presenting several important addresses, and including reports that reflected a year of constructive and effective activity by the organization, was outstanding; the entertainment and social features were delightful; and the whole atmosphere of the event provided the outstanding occasion which participants have come to expect of this organization.

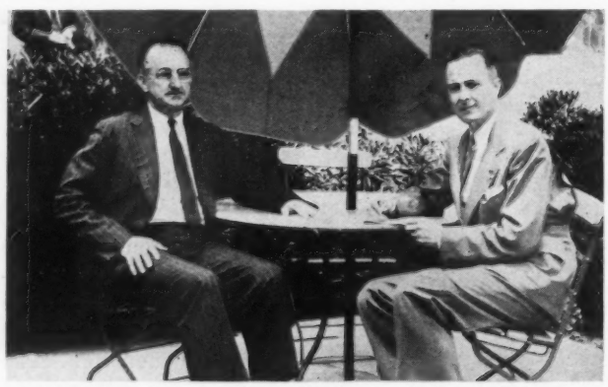
The feature addresses, on Thursday morning, were made by E. D. Rivers, governor of Georgia, and John C. Gall, general counsel of the National Association of Manufacturers; and by Paul K. McKenney, president, Swift Mfg. Co., Columbus, Ga., the retiring president of the association.

Fuller Callaway Is New President

Fuller E. Callaway, Jr., president, Callaway Mills, LaGrange, Ga., was elected president of the association at the annual business session on Friday morning. R. Hill Freeman, president, Newnan (Ga.) Cotton Mills, was made vice-president, succeeding Mr. Callaway; and R. O. Arnold, treasurer and general manager, Covington (Ga.) Mills, became treasurer succeeding Mr. Freeman. The following men were named to the board of directors for three-year terms: H. Gordon Smith, general manager, U. S. Rubber Products, Inc., Hogansville; I. C. Milner, executive vice-president, Gate City Cotton Mills, Atlanta, Ga.; S. W. Thornton, vice-president, Hartwell (Ga.) Mills; and G. I. Parmenter, superintendent, Goodyear-Clearwater Mills, Atco, Ga. George P. Swift, vice-president and sales manager, Muscogee Mfg. Co., Columbus, was elected a director for one year to fill the unexpired term of the new treasurer, Mr. Arnold. T. M. Forbes, secretary, and C. T. Kilgore, traffic manager, were re-elected.

Ted Lewis, of Callaway Mills, LaGrange, was made chairman of the cotton division of the association, which met concurrently with the general session on Thursday. He succeeds Claude Joiner, of Standard-Coosa-Thatcher Co., Rossville, Ga., who reported for the cotton division to the general session on Friday.

Resolutions adopted by the association included a strongly worded appeal against the pending wages-and-hours bill; another urging amendments to the Wagner act in order to relieve its present one-sided character, with all restrictions put on the employer, and with biased administration. The association also renewed its request to the executive and legislative branches of the federal government for protection from jute competition and cotton goods from countries of low wages and standards of living.



Sea Island photo by Terhune

Their First Conference—left, R. O. Arnold, treasurer-elect, and, right, Fuller E. Callaway, Jr., the new president, of the Georgia association . . .

Address of Paul McKenney

In making his address as president of the association, Mr. McKenney left discussion of the activities of the organization to Secretary Forbes, and devoted his own remarks to subjects of a general business character. He declared that,

"Things are never so bad but what they might be worse. We are at peace with the world and can still 'cuss the government'. Regardless of what we may think or say about this country, we know it is still the best country in the world in which to live.

"This country developed as it did not because people were willing to let their lives be planned but because they were independent, self-reliant, willing to take a chance, and to work hard if by so doing they might achieve success for themselves. They felt if they could make a profit, they were entitled to it and the hope of that out-weighed the fear of failure. They realized that soft jobs make soft people.

"Some time ago, I read a prayer in which the author thanked God for the spread of the Kingdom 'despite the cleverness of wicked men and the foolishness of good men.' How often we are made to wonder if the foolishness of good men is not more dangerous more destructive, more to be feared, than all the wickedness of all of the clever men."

Deploring the policies of the federal government that have created uncertainty in business, Mr. McKenney cited the Wagner act and the one-sided labor board as one instance, asking what inducement there is, with such an act and such a board, to invest money. "Capital is timid and will go into hiding and stay there until it feels safe to venture out," he said. "It will not go into new buildings or new equipment or new industry as long as there is a feeling that the ownership of the plants is subject to the mercy of any organization that may take them over and remain in possession with no regard for the rights of the owners, or the inconvenience caused the public and with no fear of punishment or even reprimand from those supposed to see that property as well as human rights are protected." He declared that the Wagner act "should be changed to at least give business equal rights with labor."

The speakers expressed the opinion, confirmed later during the morning by Mr. Gall, that the prevailing depression really had its start in the epidemic of sit-down strikes early last year, which resulted in undue loading up of inventories in prospect of shortages.

Mr. McKenney dwelt upon the tremendous increases that have occurred in taxes within recent

years, adding that, "it is not only how much but how many taxes we have to pay", and showing how in his own company, with only one plant with a simple set-up, no subsidiaries and no branches, "we had to make a total of 7,958 returns or reports last year."

Address of Governor Rivers

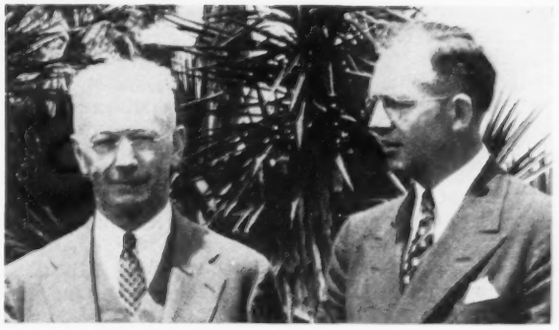
Governor Rivers, the second speaker of the morning, read an able address on the importance of industry in the further development of the South. He recounted much of what the Georgia state administration has done in recent years in an effort to encourage and not to hamper sound industrial development. He then outlined some of the advantages of the South for industry, citing its climate, labor supply, natural resources, power supply, freedom from hampering legislation and taxes.

He then turned to some of the problems peculiar to the southern cotton-textile industry, reviewing the industry's loss of its export markets, its problem of cheap imported goods, competition from jute and cottons of foreign growths. As another factor which has retarded the economic development of the South he cited the freight rate disadvantage under which southern industry has suffered for a long period of years. "Freight rates on certain commodities are on an average 20 per cent higher in the South than comparable rates for the same goods and the same distance in the North and East" he declared, giving specific instances in support of his statement. For a long period of years, he continued, "the railroads attempted to justify this disparity by claiming that the greater density of traffic in the North and the East produced lower operating costs that in turn permitted lower freight rates. But this fallacy was exploded several years ago when Commissioner Joseph B. Eastman, then co-ordinator of transportation for the federal government, published his survey of railroads and freight rates, which contained facts that proved that operating costs, per ton mile, are lower in the South than in the North and East." Governor Rivers told of the activities of the governors of the nine southeastern states in undertaking to secure adequate adjustments in freight rates to secure parity freight rates for the South.

Gall Hits Wagner Act

Mr. Gall discussed principally the inequities and prejudice of the administration of the Wagner labor act. He charged the present Washington government with "a double standard of morality". He said that while the Robinson-Patman act is designed to prevent price discrimination in private business, government purchasing represents flagrant evidence of price discrimination; that, whereas the government insists on no exemptions from taxation among private businesses, it fails to apply an income tax to its own employees; that with all of the efforts of the administration toward securing minimum wage laws, its RFC loans money to keep in business the very kind of enterprise most likely guilty of paying indecent wages; that while the administration prohibits false advertising by private corporations, the government itself advertises its own securities without exercising supervision over its advertising such as it requires for private business, and that it permits and encourages a labor organization to make any false claims that it desires, without chance of punishment. He declared that the industrial relations problem, as intensified by the biased administration of the Wagner act, constitutes the No. 1 problem of American industry.

"Something is seriously wrong," Mr. Gall said, "when, despite complete control of local employment relations by the federal government, the country witnesses over 4,500 industrial disputes in one year. In 1934 and 1935 the country was told that if the National Labor Relations Act was passed industrial peace would follow. A general strike was



Sea Island photo by Terhune

Left, Paul K. McKenney, of Columbus, retiring president of the Georgia association; right, T. M. Forbes, re-elected secretary . . .

freely predicted by labor leaders if the act was not passed. It was passed in July 1935, but there were more strikes in 1935 than in 1934 and more in 1936 than in 1935. Again, when the act came before the Supreme Court early in 1937, labor leaders and spokesmen for the National Labor Relations Board declared that the reason for the strikes of 1935 and 1936 was the employers were refusing to accept the principles of the Act, but that if the Supreme Court would sustain its validity, industrial strife would subside. The Supreme Court upheld the act in April 1937, so the last alibi was removed. Notwithstanding removal of the final obstacle, the number of strikes in 1937 was more than double the number in 1936. Marking up a tally of 4,544 strikes, 1937 set an all-time high record of industrial disputes in this country.

"The chronology of events suggests strongly that there is a direct relationship between the increase in industrial disputes and the character of administration of the act. The country is beginning to realize the one-sided nature of the act and the defects in its administration. The act itself needs complete overhauling. As written it operates exclusively against the employer. It puts no restraint of any kind on employees or labor organizations. It assumes that employers are the only persons who can be guilty of coercion, intimidation or restraint practiced against employees. Leaders of opposition camps of organized labor have publicly charged each other with coercion of employees. The board will not permit evidence of violence and coercion exercised by others than employers. It has ordered re-instatement of sit-down strikers and strikers actually convicted of illegal acts during strikes.

"The one-sided character of the act, the doubts surrounding its administration, and above all, the fact that industrial discord has increased since the act went into effect, require a congressional re-examination, and corrective legislation which will balance the act and its administration so as to protect the rights of employees, employers, and the public."

The annual banquet of the association was held on Thursday evening, with President McKenney as toastmaster, and with Rev. Pierce Harris, of Jacksonville, Fla., as the chief speaker. During the banquet, prizes won in the annual golf tournament on Friday afternoon were presented by R. O. Arnold, who was in charge of the tournament. Two prizes for members were won by Forbes Bradley of Columbus, and Frank B. Williams, of West Point; and two prizes for non-members went to Erwin N. Darrin, of Spartanburg, S. C., and Alva G. Maxwell, of Atlanta—in a blind bogey tournament. Past-President W. N. Banks, of Grantville, presented to Retiring President McKenney, on behalf of the association, a beautiful wrist watch as a token of appreciation and esteem.

A large number of Georgia textile mills had furnished products of their plants as attendance prizes for the ladies at the banquet, and the drawing for these prizes—more than enough for one for each lady present—was supervised by J. A. Mandeville, of Carrollton. Dancing followed the banquet program.

The final session of the convention on Friday morning was the annual business meeting. Secretary

Forbes read the report of the treasurer, in the absence of Mr. Freeman, and then presented briefly some highlights of his own report, which will appear in full in the association's year book. As always, he reported a year of effective activity and achievement. Other reports made at this session included that of the traffic committee, by J. A. Mandeville, who told of the formation of the Georgia-Alabama Textile Traffic Association, embracing both Alabama and Georgia mills; a report of that organization from C. T. Kilgore, the traffic manager; a report of the office executives' division, by J. J. Blank, the chairman, and of the cotton buyers' division by its chairman, Mr. Joiner.

Norman E. Elsas, of Atlanta, chairman of the association's public relations committee, made a brief report, declaring that the publicity and public relations activities of this committee speak for themselves. The Georgia association has carried on an especially constructive and influential program, and at the Sea Island meeting, the members present unanimously endorsed its work and urged its full continuance.

H. Gordon Smith, of Hogansville, reported for the state engineering experiment station committee, dealing principally with the studies being made at Georgia Tech, under its direction, with respect to the effect of drawing roll speeds on the breaking strength of yarn. Mr. Smith reviewed some of the conclusions in the report of the study, by Ben B. Peacock, published in March; and indicated that further tests now under way have eliminated some of the variables and have carried the roll speeds higher than those used in the original test. The report of the original tests, "Studies in the Cotton Drawing Process", was issued in February, and was reviewed on page 82 of the March 1938 issue of COTTON. In general, the conclusion of the report was that "Increased drawing roll speed results in an increased tensile strength of yarns produced."

Piedmont Division Meets in Charlotte

Newly organized group of the Southern Textile Association holds round-table discussion at its second meeting

WINDING UP the almost continuous weekly meetings of the various divisions of the Southern Textile Association was the discussion held Saturday morning, May 28, by the Piedmont Division at Charlotte, N. C., in the chamber of commerce building. The group was welcomed by David Clark. Edwin M. Holt, president of the association, was present and emphasized the necessity for the exchange of ideas, even more necessary now than ever before because some action on the part of an overseer or superintendent may have a great influence on the industry at large. This division, organized last fall, was presided over by Marshall Dilling, secretary-superintendent, A. M. Smyre Manufacturing Company, Ranlo, N. C. Nearly 100 mill men and associate members of the association were present. J. C. Edwards, general superintendent, Morgan Cotton Mills, Inc., Laurel Hill, N. C., led the spinning discussion and A. W. Benoy, Ella Mill, Shelby, N. C., led the weaving.

D. H. Williams, representative from Gastonia, N. C., of the E. W. Montgomery Company, cotton brokers, was the guest speaker. He told of the various phases of the cotton business and how it affects the mills. In his talk Mr. Williams brought out the use of the polarized microscope in determining the character of cotton. He suggested a committee of mill men be formed to work in conjunction with the government and shippers to alleviate any conditions arising in the cotton business that may need correcting, naming such points as willful fraud in baling the cotton, etc. He also suggested running the stock through the mill in lots according to shipments or sections of the country instead of blending it. This method will show exactly the operating conditions of the various types of cotton. Mr. Dilling questioned Mr. Williams as to the percentage of moisture in the 1937 cotton crop, pointing out that he has found an average of 9.61 per cent moisture, which gives the cotton mill an invisible loss of between two and three per cent on the weight of the stock. Mr. Williams admitted that the 1937 stock has easily two per cent more moisture in it than recent years, attributing this to the picking and ginning and baling of the cotton while it was damp.

Reported by John C. Fonville

Carding and Spinning

In beginning the carding and spinning questions, taken from the prepared questionnaire, Mr. Edwards referred to a subject discussed at the Danville, Va., meeting of the association on the correct size of the holes in drawing and card trumpets. He advises that this was only giving away the fact that trumpets had holes in them, and that this was just another item to be taxed, the government having overlooked placing a tax on the holes in trumpets. The first question was a discussion on preventing the licker-in on the card from plucking (licker-in snatching fiber from under feed roll) when running 100 per cent cut staple rayon. J. C. Pirkle, Durham (N. C.) Cotton Manufacturing Company, said that it is necessary to have the feed plate long enough for the length of the fiber being run and to have the lap light enough in weight. Some of the mills run 15- or 16-ounce laps and it is difficult to do this with present cotton equipment on 1½-inch cut staple rayon. He suggested cutting the weight of the lap down to 13 ounces and to have the feed roll in excellent condition. Occasionally the feed roll is warped or the bearings are out of line and this allows the roll to lift up and permits the stock under the feed roll to be snatched out by the licker-in. In closing he summed his statements up by saying to run a lighter lap, have the feed plate in good shape, have good flutes on the feed roll, use good bearings and use them properly, and have the correct lip on the feed plate. Upon being questioned by the chairman, he contended that on 1½-inch staple the distance from the bite of the feed roll to the licker-in should be 1⅛ inch and that it is often necessary to increase the weight on the feed roll when running the lighter laps. The chairman also asked if there is a variation in the density of different types of rayon and Mr. Pirkle answered in the affirmative, saying that some kinds of rayon are harder to run than others. Mr. Pirkle was

in favor of not using the blade beater on cut staple rayon in processing it on pickers. For a 1½-inch denier and 1½-inch staple rayon, he advised making a lap of not over 13 ounces. He handles his waste by making a light lap on the pickers again if it is possible. The chairman had seen rayon waste run through the W3 waste beater.

J. L. Brannan, Hermitage Cotton Mills, Camden, S. C., said that spun rayon comes in all types of "put-ups" the same as cotton. He pointed out that cut staple from Japan comes packed so hard that it is impossible to split the bale with a crowbar, the best way to open it being to punch a hole in the center of it and turn the air hose on into it for several hours. The air will penetrate the bale in time and make it easier to open. According to Mr. Brannan, the Japanese rayon is excellent for blends, but it is not satisfactory to run by itself. He has found that in running Italian rayon it is more satisfactory to place twice the usual number of pins in the lattice apron and at the same time increase the speed of the hopper. He has never experienced American-made rayons jerking in from under the feed roll, but suggested increasing the weight of the feed rolls.

He reported on several tests: the first of these was 1½-denier and 1¼-inch staple natural rayon, 20s run with a twist multiple of 3.00 times the square root of the number and it gave an average break of 95 pounds (the average break on cotton of this count is about 97). The next was a red dyed raw stock rayon with the count of 19.70s and it gave a break of 80 pounds. A green raw stock rayon, 19.81s, gave a break of 60 pounds and a black raw stock dyed rayon, 19.83s, 3 denier, 1½-inch staple, broke 46 pounds. He pointed out that the stock giving the low breaks had been curled in the operation of dyeing and had been worked too much in the picker. From the foregoing information, it was concluded that it is necessary to be most careful in dyeing the stock and in preparing it in the opening processes. He has run rayon staple sliver at 65 grains per yard and dropped it to 50 grains per yard, thereby getting a better breaking strength.

The chairman concluded the discussion on this subject by saying that it is better to open the stock and let it bloom for 24 hours, though 48 hours would be better.

The next question concerned increasing the twist in long draft roving as compared with conventional draft frames in order to give the same breaking strength and ends down per 1000 spindle hours in the spinning. A member from the Erwin Cotton Mills Company, Cooleemee, N. C., reported on running 1.45-hank roving single into 21s yarn. He used a twist multiple of 1.25 on the conventional draft frames and had to resort to a twist multiple of 1.45 on the long draft roving frames in order to get the same breaking strength. This was on ⅞-inch cotton. His experience was with the 4-roll system of long draft and he increased the twist multiple to prevent the roving breaking back in the spinning. Mr. Holt added to this, saying that he has experimented with break drafts on his long draft roving but has not done so on the spinning. Mr. Edwards pointed out that in his opinion it is necessary to increase the twist multiple in the long draft spinning because of the elimination of the processes and consequently the loss of spirality in the individual fibers. A question was asked when in running rayon staple is it necessary to use one or two processes of drawing. The chairman suggested using two processes if long draft roving is used—consider in this question from the standpoint of breaking strength.

The third question asked for a reasonable variation in both warp and filling yarns spun from raw stock dyed Carolina cotton, middling, ⅞-inch to 15/16-inch. F. D. Lockman, Monarch Mills, Lockhart, S. C., estimated the variation at about 15 per cent, but the chairman said perhaps 20 per cent, or 10 per cent variation from the number each way, high or low.

The next question pertained to the oiling of top spinning rolls on long draft spinning. Charles Alexander, Erwin Cotton Mills Company, Cooleemee, oils the saddles and fills the reserve twice in 80-hour week. This mill does not use the saddle equipped with wick. Mr. Edwards told of boring holes in his saddles and inserting the wicks at the mill. He considers it best to oil the saddles as they need it, emphasizing the importance of using the proper oil and one that will stay where it is put.

The air-cleaning (suction type) system was discussed as used on the Barber-Colman system of spooling, and other systems were mentioned. The chairman advised that such systems are said to reduce wild yarn and also to reduce the amount of cleaning necessary. Mr. Lockman reported on using the system at his plant for about 9 months and stated that it does eliminate wild yarn. Also, it is not necessary to clean so often as before using the system. It keeps the room free from lint and dust and the girls don't have to comb the lint out of their hair as much as formerly, he pointed out. About two per cent is removed in lint and deposited in dust chamber.

Mr. Edwards

Mr. Holt asked if there is a special motor to drive the suction system. Mr. Lockman said that there is a special motor, a 7½-hp. one being used on his system, but he believes a 5-hp. motor will do the work. The chairman told of equipping his spoolers with a home-made system and contended that it removes much dust and lint from the room. He further explained that much wild yarn could be eliminated by keeping the bottom rotary brushes in good condition and keeping the snick plate levers in their correct position. Mr. Eaddy of The Textile Shop, Spartanburg, was called on and told of an installation for removing lint and dust on spoolers at the Whitney (S. C.) Manufacturing Company, saying that 93 per cent of the lint is removed from the air by the system. This system is manufactured by his company. He explained that different mills run the dust collecting systems at different speeds, which require more horsepower for greater amounts of air expelled from the room.

The last spinning question was on the best method to start spinning after a doff to insure clean run-off at the Barber-Colman spooler. C. W. Alexander, Cooleemee, said to have doffers pull down the traverse with the ringrail two thirds from the bottom of the bobbin and doff. Let the ringrail up and start the frame. Then pull the ringrail back to the bottom and run about four winds to lock the yarn at the bottom of the bobbin. Then let the traverse back to start the building of the bobbin.

Slashing and Weaving

A. W. Benoy, Shelby, N. C., began the discussion on slashing and weaving by asking *What is the best method of running selvage ends on a slasher to prevent slack or tight selvages?* T. C. Pegram, Cooleemee, explained that the selvages are run two ply on the Barber-Colman warpers and that a dent is skipped in the comb. In this way tight and loose selvages are eliminated. If for some reason the selvages become tight, then another dent is skipped in the reed. W. P. Cargill considered the best way to eliminate this difficulty is to place the selvage on the warper beam. Mr. Lockman uses the same method but places single yarn on the beam. If he has 8 ends in the comb all the way across in the body of the warp, then 5 or 6

ends of the selvage yarn are placed in the dent of the comb. He differs on the use of two-ply selvages, explaining that for a number of years he used the two-ply selvages but for the past 4 or 5 years he has run the selvage from a cheese at the back of the slasher. Twisted yarn was not run through the size mix or under the squeeze rolls, he explained. The chairman added that the beam heads and journals should be true and the section beams should be in line in the slasher creel. He further pointed out that the temperature of the size has a great effect on the selvage yarns. If it is too high the selvage will be damaged. The condition of the squeeze roll blankets also affects the sizing of the selvage, as well as the body of the warp.

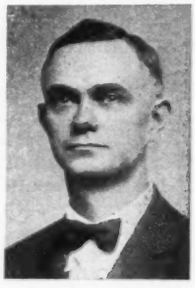
How can filling jerkbacks on looms be eliminated when using filling feelers? was the second weaving question. J. F. Davis, Cooleemee, said that many things enter into this question, especially when feelers are used. The thread cutter must be set properly and the knife working well. The temple thread cutter must also be operating satisfactorily. He also pointed out that it is necessary to have a good groove in the shuttle and to have a good tension in the shuttle to hold the yarn. The chairman said that he has much trouble along this line; the knives and shuttle feelers are fixed one day and the next day they are loose and are not operating correctly; he asked for a method of making them stay fixed, but no one present offered any advice. One member suggested that one way to prevent jerkbacks is not to permit the quills to collect in the can until it is too full.

What method do you use to prevent loom fixers from increasing the power on looms? was the next weaving question. A member advised that his method is to have a rule for setting the power straps 7¼ inches above the heel bolt. This is watched carefully by the overseer and second hand, and if one is discovered hanging too low, the loom fixer is advised of it. A stick is cut the proper length and is used as a gauge in setting the power straps. He also tells the fixers that the easier the loom runs, and the less power that is on the loom, the less fixing the loom fixer will have to do. He pointed out that it is impossible to get the lugs too high, because the loom will slam off, but it is easy to have the power straps too low, and that too much power on the loom, or a low lug strap will have a detrimental effect on every part of the loom. The chairman said that he has a system of "look and listen" and a careful watch is maintained for low lugs.

Methods to prevent reed marks on low sley goods were next taken up. M. W. Rogers, Jr., Chadwick-Hoskins Company, Charlotte, is running rayon but the sley is not very low. He brought out that a slack warp will help to cover up reed marks and that the position of the beam has much to do with it also. Sam T. Snoddy, Entwistle Manufacturing Company, plant No. 2, Rockingham, N. C., contended that reed marks may best be eliminated by putting face on the cloth, accomplished by raising whip roll and warp stop motion, and having the warp stop motion level with the breast beam. Another member said that this trouble could be eliminated by running the whip roll high and the warp not too tight. Mr. Lockman pointed out that there are several things that will cause reedy cloth, among them being the adjustment of the let-off, which should be regulated so that the let-off is the same as the take-up instead of letting off quantity of yarn and then idling; too much twist in the yarn; and the slasher size being too harsh.

Next followed a discussion on checking the life of shuttles. Mr. Pegram told of a system for logging each loom and when the fixer gets a shuttle for a certain number of loom, this record is kept on a sheet where the record may be inspected at a glance. The date is also placed in each shuttle. If it is discovered that one loom is using too many shuttles, this is called to the attention of the loom fixer who inspects the loom, after which, the loom is again inspected by the second hand. He finds that the life of shuttles in his plant averages 2400 loom hours, on Draper looms, making goods from 7 to 1.75 yards per pound. Mr. Holt added that the date placed in the shuttle permits an inspector to tell how long the shuttle has been running and whether or not it is running satisfactorily. The chairman uses a system similar to the foregoing and had an average shuttle life in 1937 of 3000 loom hours. For the first quarter of 1938 this average life has been increased to 3300 loom hours; this refers to 80x80 goods.

A method for reclaiming worn or broken loom parts and the responsibility for passing on their repair was taken up. G. V. Hanna, Mooresville (N. C.) Cotton Mills, said that the mechanic in the machine shop passes on the repair of all loom parts, whereupon they go back to the supply bin. All of the broken parts are saved for this mechanic's inspection to see if they can be repaired. According to T. A. Brown, Cramerton (N. C.) Mills, Inc., the broken parts or worn supplies in his mill are turned in to the supply room. If the attendants think the parts can be salvaged, they are passed to the machine shop. Then they are returned to the supply room and inspected, and if they are not suitable for use, they are rejected. However, the overseer of weaving inspects each part before it is discarded as unfit for service. Another member said that such parts as broken or worn gears are built-up in the machine shop and then re-cut.



Mr. Alexander

The chairman asked for experience with both electric welders and acetylene welders. L. M. Kincaid reported on using both, and said that each type has its place in welding, according to the work to be done. He said for such work as fixing sand rolls, warp beams, etc., the electric welder is better. The cost of using the electric welder, according to him, is about 25 per cent of what the work with the gas welder costs. The gas welder is better for work on cast iron, he contended. His plant is equipped with the dc welder, the ac welder not being suitable for his work.

What supply parts are charged to the fixer and what records are kept? was the next question. S. R. Powers, Jackson Mills No. 3, High Shoals, N. C., charges all supplies to the fixer; the shuttles are numbered as they are issued and then they are checked to see that they are put in the loom properly, the second-hand doing this work. A record is kept of all supplies and the overseer is given a copy of it each week. The chairman asked if anyone budgets the fixers' supplies, explaining he does and finds that it decreases the supply bill. A record kept shows which fixers run over and under the budget. Mr. Lockman asked if fixers coming under the allowed budget were compensated, and the chairman said they were not, but that they were complimented. It was further asked if trouble was encountered in the budget plan with the fixers putting off a job that should be done immediately until next month just so they would come within the budget. The answer to this was in the negative. Mr. Holt considered this budget method a good system as long as an adequate check is kept on the looms to see that they are kept up properly.

Another question was injected, *Which is better, high efficiency or low cost of repair?* Mr. Holt answered that high efficiency is better. The chairman pointed out that there is a degree of efficiency that can be obtained with a minimum of supply cost.

The last question was on a systematic method of checking individual looms to see that all parts are in proper repair and functioning properly. Mr. Rogers explained his system of having a card with a number

of items on it that are to be inspected each time the warp runs out. The loom fixer does this work and then the secondhand follows him to see that the work is done. This card carries the names of parts to be inspected that may ordinarily be overlooked by the fixer in his regular work.

G. V. Hanna told of having a system similar to the foregoing. L. J. Davis, Cooleemee, explained a card system on which there are 28 points or questions to be checked by the fixer. Each fixer on the section for the various shifts is assigned a certain number of looms and he must check all the points listed on the card on one loom before going to another. It begins with the cam shaft, crank shaft, etc. Mr. Davis explained that they try to fix the parts of the loom in the order they should come, in relation to each other, the battery coming last. It is of little use, he said, to install and set the crank arms and then set the battery, and later discover that the crank shaft must be changed. When the card is checked by the fixer, it is turned in and his work is inspected by the secondhand. At the end of the month it is easy to see how many looms each man has checked on his job, and it gives a comparative report of each fixer's work.

This concluded the practical discussions and the nominating committee placed the following names before the division, all of whom were elected by acclamation: B. M. Bowen, Salisbury (N. C.) Cotton Mill, chairman; M. T. Poovey, Hannah Pickett Mills, plant No. 2, Rockingham, N. C., vice-chairman; and the following to serve on the executive committee: J. C. Edwards, Morgan Cotton Mills, Laurel Hill, N. C.; W. P. Johnson, The Kendall Company, Thrift Mill, Paw Creek, N. C.; J. L. Brannan, Hermitage Cotton Mill, Camden, S. C.; R. B. Cook, Mooresville (N. C.) Cotton Mill; and Arthur Benoy, Ella Mill, Shelby, N. C.

Eastern North Carolina Mill Men Meet in Raleigh

THE EASTERN NORTH CAROLINA division of the Southern Textile Association held its regular spring meeting Saturday morning, May 21, at the textile school of the North Carolina State College, Raleigh, N. C. Attendance was good. The discussion followed a prepared questionnaire. J. L. James, superintendent, Erwin Cotton Mill Company, plant No. 1, West Durham, N. C., presided over the meeting in place of J. V. McCombs, the regular chairman, who was ill and unable to attend the meeting. For the ensuing year the following officers were elected to carry on the work of this division: J. L. James, chairman; J. B. Batton, Sr., Rosemary Manufacturing Company, Roanoke Rapids, N. C., vice-chairman; George Gilliam, Sterling Cotton Mill, Franklinton, N. C., secretary; and W. H. Miley, Jr., Erwin (N. C.) Cotton Mills Company, plant No. 2, as the new member from this division on the board of governors.

Ageing Bleached Raw Stock

Going into the practical discussions, the first question was *How long should bleached raw stock cotton be aged and what is the best method for ageing?* J. C. Pirkle, superintendent, Durham (N. C.) Cotton Manufacturing Company, said, "Bleached raw stock cotton should be aged at least 48 hours and longer if possible and if convenient to do so, depending upon the facilities the mill has for ageing. When cotton is bleached and dried it loses a certain percentage of its natural oils and moisture content, and is left in a weaker condition, and should be allowed to age under proper humidity in a loose state. The best method to age cotton is to have it opened or left loose, then blown into large bins, or large trucks, with perforated or lathed sides so that the air and moisture may circulate throughout the stock, allowing it to regain its natural moisture content." The chairman asked if the proper opening and cleaning equipment were used, would it be necessary to age as much, or would ageing be as important as when insufficient opening and cleaning equipment were used. Mr. Pirkle said that some mills get a better bleach than others, or get a greater percentage of bleach, and this would affect the ageing period of the stock, but he held to his point that the stock must age long enough to regain the necessary humidity for processing. W. H. Miley, Jr., told of running a sample of bleached cotton, though he has had no experience running production quantities, and said that the sample run had not been aged and therefore ran poorly. He believes it is best to age the bleached stock no matter what kind of opening equipment is used. M. R. Harden, Erwin Cotton Mills Company, Plant No. 4, West Durham, has had satisfactory experience with bleached cotton by storing it in bales. The bales are turned over and the ties are broken so that the cotton can lie loosely. He explained that this method is quite satisfactory when there are not bins available to store it in the loose state.

Virgil E. McDowell, Rosemary Manufacturing Company, Roanoke Rapids, asked if the dyehouse also plays an important part in affecting the running quality of the stock. Mr. Pirkle admitted that the dyehouse work is a very important factor in the processing of the work later. He believes that when the stock is dyed it is best to have large storage bins so that the stock can have time to get the proper regain. "If you do not have bins, then it is best to open up the bales and let the humidity get into the cotton." The chairman had had no experience with raw stock bleached cotton, but considered the use of good opening and cleaning equipment as a possible means to get the stock to run better after it has been bleached. Mr. Miley suggested that the addition of oil spray might help bleached cotton, just as it does cotton that has not been bleached. J. T. Hilton, textile department, N. C. State College, reported on running raw stock dyed cotton several years ago, and processing it both with and without oil spray. He could tell no difference in the two methods. He considers the dyehouse as the cause of many troubles in the processing of cotton dyed raw stock because the natural waxes are washed out of the cotton. He suggested the addition of sulphonated oil in the dyed raw stock, being added at the last. Mr. McDowell thought that the *dyehouse* must be the cause of much trouble in later processing because when the stock is *bleached* properly this trouble is not had so much as in the case of dyed stock. He suggested ageing the stock for about 24 hours, just long enough for it to re-condition. He has known mills that use the oil spray on the stock

Reported by John C. Fonville

and then it is not necessary to leave it in the loose condition—it may be run immediately or it may be run later.

Double Carding or Sufficient Opening Equipment?

For cleanness, evenness, and breaking strength, is it possible to put in cleaning equipment sufficient to give the same quality as double carding? If so, what equipment would you use? was the second question. Mr. McDowell explained that the only reason mills double card is to remove the neps from the stock, and if an elaborate opening and cleaning system is used, it is not necessary to double card. Also, when there are only a few preparatory machines, the stock that is to be double carded is run through the opening and picking machinery again, and this should not be done. It was later brought out that if the mill is to double card, it would be better to have a sliver lap machine and form the laps for the cards instead of running the entire stock back through the opening and cleaning equipment again, which injures the cotton.

D. E. Long, Oxford (N. C.) Cotton Mills, asked Mr. McDowell just what machine or machines make a system of opening and cleaning "elaborate". Mr. McDowell explained that by "elaborate" he referred to the latest machines and attachments such as the Gyrator, blending reserves for pickers, etc. Mr. McDowell does not consider the following an elaborate system: One opening section feeding into Centrif-air machine and then to one Buckley beater section and a vertical beater and then to the single-processing picking. The elaborate opening and cleaning equipment as given by Mr. McDowell is as follows: Bale breaker, Centrif-air machine, another hopper section with apron to Buckley beater section, vertical section leading to Gyrator, and from there to dyehouse or picker room equipped with single-process picking. In the pickers, the first section should use an improved beater that does not injure the fibers, a multiple-blade beater and then a two-blade beater and then a carding beater; also, have the blending reserves on the pickers.

One member brought out that perhaps double carding also produces an evener sliver as well as a cleaner yarn. Mr. McDowell admitted that when the stock is double carded the condition will be better and the fibers more parallel. He considers that the second carding process is for the purpose of removing the neps and he does not think the yarn in the cloth will be any evener by double carding. "You can remove everything in the cotton except the neps by opening and cleaning equipment," he added. W. V. Byers, assistant manager, Erwin Cotton Mills Company, West Durham, said to the opening equipment he would add feeders and be sure to have the blending reserve on the pickers; he believes the neps can be removed from the stock by carding only once if the carding is slow enough and light enough, if the cards are stripped often enough, and if the clothing is kept sharp. Much depends on the product desired—it may even be necessary to comb the stock.

Mr. Harden asked what the correct number of strips should be on two 8-hour shifts running Middling cotton, carding 8 or 9 pounds per hour. A. L. Oldham, Erwin (N. C.) Cotton Mills Company, plant No. 2, advised on this work to strip every three hours and use the stripping brush once a week. W. T. Byrd, Erwin No. 1, West Durham, contended that the number of strippings depends on the stock and also the percentage of humidity. In high relative humidity the cards load faster than when the room is comparatively dry. Too much stripping is not conducive to good carding because the cards must fill up again. He suggests stripping as often as is necessary to meet the local conditions, but not to set any definite number of times. The chairman, also of the same mill, said the general practice is to strip every 3 or 4 hours and at the present in his plant he is stripping twice in 8 hours. Mr. Byrd added that the benefit of actual stripping depends on the man doing the stripping. He may take an active interest in his work or he may be doing it just to get through with the job. In his plant, when the card stripper discovers a card that is difficult to strip, he reports it and the card is stripped with the stripping roller.

Licker-In Speeds Again

The third question on the prepared questionnaire was, *When you reduce the production of your card, do you consider it advisable to reduce your licker-in speed?* Mr. Gurley explained that if good cleaning is desired the licker-in beats per inch should not be reduced. If the production is reduced and then the speed of the licker-in is reduced also, the full benefit of lowering production is not secured. It was further brought out that when carding 10 pounds per hour, 375 to 400 r.p.m. is a good speed for the licker-in. Again it was emphasized that there is little need for cut the speed of the doffer and then cut the speed of the licker-in because the value of the cut production is thereby lost. W. T. Hunnicutt has reduced the production slightly but has not changed the speed of the licker-in. He has known mill men to increase the speed of the licker-in when reducing the production, in order to get better cleaning. D. Frank Lanier, Oxford (N. C.) Cotton Mills, reported a speed of 460 r.p.m. on his lickers-in. Mr. Harden said that this speed would not injure the stock. He ran 460 r.p.m. for a number of years, then cut the speed, found no better results, and again went back to 460 r.p.m. Mr. Oldham runs a licker-in speed of 588 r.p.m. on filling and 428 r.p.m. on warp. Mr. Harden averred that if the cotton is not injured in pickers with blade beaters it will not be injured in the cards with high licker-in speed unless the speed goes over 500 r.p.m. or more. Mr. Oldham also told of running a breaking strength test on 8s yarn by running the licker-in speed at both 420 r.p.m. and at 588. The test showed up in favor of the higher speed.

Mr. Harden

The next question was on long draft slubbers having the sliver to break, choke the frame, and break the stud pins in the draft gear. C. L. Carrow, Erwin Cotton Mills Company, West Durham, took for granted that this question included the prevention of such lap-ups, because if they are serious enough, they will break the draft gear stud pins. He brought out that belt dressing in the sliver will cause lap-ups, and if they are cut off with a knife, the rolls may be damaged, causing further trouble. Humidity is another source of trouble when running long draft roving, according to Mr. Carrow, if there is not enough humidity there will be static electricity in the stock, and if there is too much humidity, the work will not run well. The humidity for each mill must be determined according to local conditions. On apron-type long draft frames the aprons must be kept in good condition and the rolls under the aprons must be kept clean. Another important factor on any double-draft machine is to have the drafts in the proper proportion. One machine manufacturer recommends a ratio of two to one. If there is too much draft on the back the lap-ups will be more prevalent. Of course, it is necessary to have good sliver as the frames will not run single or cut sliver.

Mr. Miley reported that there is only one long draft frame in his plant (4-roll type with forming trumpet), running a draft of 7.42, which is all the draft he needs, and he has had no trouble at all with

it. Mr. Oldham who has this same long draft frame, said upon installing it trouble was encountered with lap-ups, but upon decreasing the break draft three teeth this trouble disappeared. The chairman added that with controlled humidity and proper distribution of draft (60 on front and 40 on back) there will be little trouble with lap-ups.

More on Long Draft Roving

What results have you obtained with long draft roving frames with regard to evenness and breaking strength? How does long draft roving compare with the conventional draft roving? was the fifth question. D. F. Burns, Durham (N. C.) Hosiery Mills, came prepared with exhibits and read a paper giving the facts of tests run in his plant. His remarks follow:

We do not have any new long draft frames in our mill; we changed our old 9 x 4½ frames over to long draft, 3 rolls, belt type. I believe the machine builders call this type the regular long draft. I have not had any experience with new long draft systems.

In comparing the long draft two-process roving with the conventional type three-process roving, all of my figures show that the yarn made from two-process roving is stronger and varies less than the yarn made from three-process roving on the conventional type. On 80 reelings of 120 yards each, two-process roving, our average breaking factor on average number 15.71s is 1773. On 75 tests of 120 yards each, three-process roving, our average breaking factor on average number 16.52s is 1650. This test was made the same day from the same lot of cotton, working under the same conditions, this shows that the yarn produced from two-process roving is about 7½ per cent stronger than yarn produced from three-process conventional system.

While the reeling and breaking strength shows up better on the two-process long draft roving the fabric is not as good as the fabric made from three-process conventional type. I have some exhibits that I can show you that will explain what I mean by the fabric not being as good from two-process roving as from three-process roving.

Exhibit 1 This fabric was made from the two-process roving made on long draft system, knit on a fine gauge ribber, single end. If you will hold this fabric between you and the light you will see that it shows what the knitters call "zebra stripes" or a washboard effect.

Exhibit 2 This fabric was made from three-process roving conventional type, knit on a fine gauge ribber single end. You will note that this fabric is smooth and almost free from zebra stripes or the washboard effect.

Exhibit 3 This fabric was knit from two-process roving made on long draft system and knit with 4 ends up. By knitting yarn on this type machine and with 4 ends up you will notice that the zebra stripes do not show up. This is because the light and heavy streaks blend together. When we first installed this equipment we knitted our fabric on a machine with 4 ends up and this is where we were fooled or dumb, whichever you choose to call it.

At the time we installed this equipment we were selling practically all of our production to underwear knitters and we sent some of this new yarn to a few of our customers and asked them to give us a report on it. We had several reports saying that the new yarn was better than our regular yarn. But all of this was knit on underwear machines, knitting from 4 to 8 cones at one time. This blended the light and heavy places so well that it was not noticeable. After we changed over all of our plant some of our customers, who were knitting fine gauge misses ribs from a single cone of yarn called our attention to the zebra stripes in the fabric. After receiving these complaints we immediately got a fine gauge ribber and knit up some of the yarn and we found the zebra stripes in nearly every number we were spinning. Since then we have done a lot of experimenting trying to overcome this unevenness but the only way we have been able to eliminate it was by going back to three-process roving.

My advice to anyone who is planning to put long draft in a spinning mill supplying the knitting trade would be for them to put in a sample frame and make tests on a fine gauge knitting machine, single end. This method of knitting will show up any defects in the yarn and any yarn that will stand this test will be good enough for any kind of knitting.

Mr. Burns advised that since the foregoing tests, other tests have been made to overcome zebra stripes without success. The intermediates and spinning are both double creeled, with a draft of 8 on the former and 16 on the latter. The draft is between 3.75 and 4.00 on the slubber. His final opinion is that the 3-process roving shows up better than the 2-process. When asked if he has made any changes in his opening and cleaning, Mr. Burns reported that he has begun blending the cotton better by using more hoppers; by so doing he has secured evener weighings but has not eliminated the zebra stripes. Mr. Miley said that on his tests with the long draft roving the breaking strength is in favor of the spinning run from long draft roving but there is no difference in the evenness. The long draft spinning had about 50 per cent more ends down in the spinning than the conventional type, though the breaking strength was better. Mr. Miley is running a 50-grain drawing sliver making a 1.18 hank roving on his long draft frame. Mr. Burns brought out that it is difficult to tell the difference in evenness on a blackboard test between the conventional draft spinning and the long draft spinning made from long draft roving because in the latter the uneven places are 18 or 20 yards long and the unevenness does not show up as much in comparison. Mr. Miley is running a very heavy fabric and can tell no difference in the evenness in the cloth.

Mr. Miley

Mr. James, the chairman, told of having three processes of roving and then changing over to long draft roving, retaining his conventional draft spinning. In a test, the long draft roving made the conventional draft spinning break two or three pounds under that of the regular 3-process roving and conventional spinning. However, upon installing long draft spinning and in conjunction with his long draft roving, the breaking strength was in favor of the long draft roving and long draft spinning. He believes the long draft roving and spinning should be run together. Mr. Byrd was of the opinion that long draft roving is still in its infancy and has a long way to go. He explained that it is comparatively easy to run one frame of the long draft roving, just as it is easy to run one loom or one spinning frame, where it can be watched and nursed along, "but," he said, "when you have six of them you have got your hands full." Another man, reporting on a visit to a large print cloth mill, said that long draft roving is satisfactory as long as the yarn is going into the cloth that is to be woven at that mill, but it does not make yarn satisfactory to sell to the trade.

Mr. Byers contended that the time is coming when every mill will have long draft. Speaking from experience, he said that it is an improvement in both evenness and breaking strength, and he believes the results shown in his plants have justified the experiments.

The sixth question was *What has been your experience with a self-weighted middle roll on conventional spinning as to breaking strength and evenness of yarn?* Mr. Lanier explained that in his mill it was desired to draft more in the spinning so he experimented with the self-weighted rolls on 16s yarn with a draft of 8.40. The results were not so good as with the regular three iron rolls. But, on 20s with a draft of 10.5 the results showed up better. "If you have to draft 12.5 or 13, then the self-weighted middle rolls will give an evener yarn and better breaking strength than the regular process of three rolls. I would not recommend those rolls unless you have to draft from 12 to 13. I had rather have a draft of 8.5 and the regular rolls than to have a draft of 12.5 and use the self-weighted middle rolls. But, if you have to have the draft of 12.5, you should have these rolls. I think

if you have the higher draft, then the self-weighted middle rolls are better than the regular 3-roll system on the higher draft." Mr. Harden asked if these rolls were used on fine numbers and he was told that the builder recommended them for use on yarns from 6s to 100s. Mr. Burns told of running the self-weighted rolls several years ago on 50s, 60s and 70s combed stock and securing just as good breaking strength on a draft of 14 as with the three rolls. He pointed out that it is necessary to have a certain weight roll for the different numbers run, he himself using a 1100-grain roll for 60s and 70s. He did not know the proper weight for 6s and 10s. He also told of using a very light-weight middle roll in spinning 20s to 30s and he had better results because there was no cockled yarn. The breaking strength and evenness were just as good. There were also fewer ends down using the self-weighted middle roll on 60s and 70s than there were with the regular three rolls. He reported no trouble in cleaning with the ends coming down on 20s to 30s with this roll, except occasionally. J. O. Creech, Selma, N. C., uses a 1200-grain roll on 30s running single creel and is getting good results—the breaking strength is the same.

Humidity with Long Draft

What has been your experience with humidity where you have long draft in carding and spinning? What per cent have you found most satisfactory in each department? was the next to last question. Mr. Miley explained that per cent relative humidity meant the percentage of moisture in the air as compared with the percentage of moisture that the air will hold. The air will hold more moisture at different temperatures. A relative humidity of 50 per cent means the air has just half as much water in it as it will hold, or, 50 per cent more moisture could be added to the air without its being saturated. As explained before, Mr. Miley has only one long draft roving frame. The humidity for the regular draft frames is controlled at 55 to 60 per cent, and this frame runs satisfactorily in the same room. In the spinning room the humidity is operated in conjunction with the air conditioning unit and the humidity is held between 55 and 60 per cent. The relative humidity, he explained, will depend on the character of the work, the cotton, and local conditions. He runs the humidifiers at night in the winter because the work is difficult to start up in the mornings, but in the summer the humidifiers are cut off at night. Mr. Oldham runs 60 per cent relative humidity on roving frames and drawing, and 40 per cent over the cards. D. F. Baker runs 55 to 60 per cent in the card room and 70 per cent at the long draft drawing and slubbers. He reported no trouble with his long draft roving, saying that he simply doffs and oils it. Mr. Hughes also uses 55 to 60 per cent relative humidity in the spinning, and thinks 65 to 70 per cent is too much, and 50 per cent too little. Mr. Harden brought out that the construction of the mill building has much to do with controlling the humidity. He puts the amount of humidity he wishes at his roving frames and it gets back to the cards, which are located at one end of the room. G. E. Moore, J. M. Odell Manufacturing Company, Bynum, N. C., contended that there is more danger in getting too much humidity in the long draft roving than too little, explaining that often he has to keep the humidifiers cut off in order to get the frames to run.

The last question was, *What is termed "balanced twist" when only spinning and one twisting process is used? How do you obtain a balanced twist in a yarn that is run one process on twisting with two or more ply?* Mr. James considered that if 20s yarns are being twisted, the twist should be about half as much as in the original yarn, that is, he added, if the yarn does not kink. Mr. Lanier uses 4.5 as the twist multiple in spinning and 4.70 for plied yarn. He pointed out that in plying the yarns, usually one end stands out more than the others. He was advised that this could be due to the variation in the twist of the individual ends, caused in spinning. Another member uses a twist multiple of 4.16 in the spinning and 4.75 in the ply yarns.

South Carolina Men Discuss Rayon-Cotton

(Continued from page 70)

pattern when changing from two bars in the stop motion to 4 bars, but he does not know how to change from two bars to three bars without losing the pattern. One man asked if increasing the stop motion bars from two to three would improve the quality of the cloth, but no one volunteered to answer.

Mr. McNeill wanted to know if single or ply yarn is used in the selvage on 80x80 goods. A show of hands indicated that 12 men use ply yarn in the selvage and one uses single yarn. It was brought out by a member that he uses 8 ends of ply yarn and 4 ends of single yarn doubled but not twisted in each selvage; he does this in order to borrow an end from the selvage when an end runs out in the body of the cloth.

Rayon Weaving

The first rayon weaving question asked for the cause of wavy cloth when a new warp has been tied in a loom which formerly made good fabric. Mr. Franks does not have this difficulty but suggested that the trouble might be in the let-off of the loom. It was also brought out that some mills experiencing wavy cloth have again started using smaller loom beams so that the let-offs can be better regulated. Mr. Crow pointed out that several years ago the mills would fill the loom beams only half full of rayon warp, then they began filling them and going to larger beams, and now the trend is again toward smaller beams for weaving rayon. Mr. Franks and the chairman agreed that wavy cloth could be caused by worn take-up pinion gears.

The last question on the prepared questionnaire asked for a discussion as to whether both picker sticks on a loom should have the same amount of power, or should more power be left on the lever-end stick in order to drive the shuttle up under the battery. Mr. Simmons said that this question should be thought about a great deal. At one time he had found it necessary to take as much power as possible from his looms and this question came up. He found that he could take much power off the looms, but it was necessary to leave more on the lever end so that the shuttle would drive under the battery. He believes the loom will run smoother if both ends have the same amount of power.

Mr. Swetenburg at this point asked if anyone running sago flour in the size mix has had trouble with the selvage cutting out in the reed. Mr. Lockman replied that he ran sago for two or three years but is not doing so now, adding that this was the reason he quit.

Some discussion took place on cutting down on the wooden part of the binders before re-covering them. This is done in order to allow for the extra size of the shuttle when the larger shuttle is being run. One man had done this and found it satisfactory because it allows a better fit for the shuttle point against the picker. Mr. Lockman has had no difficulty with the shuttle getting off center. W. B. Morgan, Florence Mills, Forest City, N. C., reported on changing over to the larger shuttle but has not encountered any trouble with the binder and has never cut the binders down. He explained that it is necessary to have the back box plate in line with the reed, however. He added that if a leather strap is used to hold the picker stick over far enough, it is not necessary to run the off-center shuttle and pickers. There is room for the picker stick to be moved over on the Draper looms.

South Carolina Men Discuss

Rayon—Cotton Weaving and Slashing

A LARGE CROWD PACKED THE BALLROOM of the Franklin Hotel, Spartanburg, S. C., Saturday morning, May 14, to take part in the practical discussions on cotton and rayon weaving and slashing when the weaving section of the South Carolina division of the Southern Textile Association held its spring meeting. Smith Crow, superintendent, Drayton Mills, Spartanburg, was in charge of the meeting and led the discussions from a prepared questionnaire. Mr. Crow, who has been chairman of this division for several years, was succeeded by Henry E. Littlejohn, stylist and designer for Drayton Mills, who was elected by acclamation at the meeting.

Slashing

The first question on slashing concerned the practice of removing the blankets from the squeeze rolls on slashers over the week-end to increase the life of the blankets. J. H. Franks, Republic Cotton Mills, Great Falls, has removed the blankets from the squeeze rolls and soaked them over the week-end and has found that it improves the work of the slasher to some extent. He has noticed that the life of the blanket is increased by so doing, but just how much he does not know. He explained that a more uniform warp can be secured on Monday morning because it is a good while before the dry blankets (those left on the rolls over the week-end) become set to the rolls again, whereas, when the blankets are soaked there is moisture all the way through them and the work proves to be better. T. M. McNeill, Monarch Mill, Union, S. C., does not remove the blankets and soak them over the week-end in these days of hurry and bustle, though he has done it in the past and found it helpful toward increasing the life of the blanket.

Mr. Littlejohn

In discussing the running of lease strings on every broadcloth warp as it is run on the slasher, one member said that he does not run the strings on every slasher doff. If this is necessary to make a good warp, then he thinks it should be done just before the doff, however, if the yarn is in good condition, he does not think this is essential.

Reporting on his experience with starch base sizes and gelatin base sizes for sizing rayons, R. E. Brasil, Republic Cotton Mills, plant No. 3, Great Falls, explained that he has run both starches and gelatins for sizing rayon warps and has found them both satisfactory; however, when using the gelatin base, if the slasher stands there will be a mark across the warp, and this does not occur when the starch is used.

The next question was *When an end comes down on a rayon set at the slasher, do you piece the broken end at the slasher, or do you let the weaver cross an end from the selvage to take the place of the broken end?* Mr. Brasil advised that it is best to run just as few crossed ends in weaving rayon as possible, and if the ends are crossed, it is better to cross them only a few inches. He makes an effort to have just as few ends broken at the slasher as possible to avoid any crossing in the weave room. The chairman agreed that it is more conducive to good running rayon weaving not to have crossed ends at the loom.

The last slashing question was on the number of yards of slasher blanket to use on various types of fabrics, and the weight of the squeeze rolls. Taking up 80x80 cloth, one man reported that he used a heavy squeeze roll and 7 or 8 yards of blanket when this was run at his plant several years ago. V. W. Brannon, Republic Cotton Mills, Great Falls, reported that he runs a 4½-yard blanket with a 600-pound squeeze roll in front and a 300-pound roll in the back. Another member that runs 80x80 is getting best results now by using a 6-yard blanket and a 425-pound squeeze roll in front and a 300-pound roll in the back. G. G. Simmons, Drayton Mills, reporting on broadcloth, uses an 8-yard blanket with a 575-pound front squeeze roll and a 400-pound back squeeze roll.

F. D. Lockman, Monarch Mills, Lockhart, asked if any of the other mill men present were using the thread wound slasher rolls instead of the slasher blankets. None present was doing so, and Mr. Lockman was asked to give further information on the thread wound squeeze rolls. He explained that he has used them in his plant for 6 or 7 years and feels that he is getting better work with them than with the slasher blanket cloth. They cost about 40 per cent of the price of the blankets, all told. He advised that the rolls are started on the slasher with small diameters and a little more yarn is wound on every week. After about three years it is necessary to cut the yarn from the rolls and begin anew with a fresh foundation.

Mr. Crow

Cotton Weaving

In running high sley broadcloth, combed or carded, sometimes a warp end will break and attach itself to an adjoining end and weave into the cloth, causing a flat. What can we do to overcome this trouble? was the first cotton weaving question. Mr. Franks said the best thing he knew to help eliminate this difficulty was to run leases at the slasher more often. He said at least three leases should be run on every warp. He has asked his slashed man if there are any stuck ends in the warp he is running, and upon being told there are not, he runs the lease strings and often finds from 9 to 15 stuck ends. Mr. Franks explained that there is a collection of foreign matter on the ends which will cause them to break, and the end will join up with another end that is running properly and go into the warp before the slasher man can see it; the only way to eliminate them is to run the strings again and take a fresh lease.

Mr. Simmons brought out that in the weave room frequently a warp end will break, and instead of letting the drop wire fall and stop the loom, it will attach itself to another end and weave into the cloth as a flat. He asked for a method of preventing this. Mr. Lockman suggested that this be taken up with the company furnishing the sizing compound, and contended that 95 per cent of this trouble could be traced to the chemicals used in the compound. Mr. Franks thought the trouble might be traced to improper humidity, and if there is something on the warp to make another end attach itself to it, it might be eliminated

Reported by John C. Fonville

somehow. W. P. Turner, Mayfair Cotton Mills, Arcadia, said the chances are that the end is already joined to another end before it breaks—this could possibly be traced to improper humidity and something in the size compound.

The next question asked for a method of preventing the bobbin turning in the Draper loom battery and breaking the filling either before or on the change; the turning, it was explained, is due to the vibration of the loom. Mr. Lockman said he understands there is spring available that fits onto the battery to stop the bobbin from turning. A representative of the Draper Corporation was present and reported that this spring has been tried for about 30 days in a mill with satisfactory results.

Another member maintained that he had this trouble some time ago—only the bottom bobbin in the battery was turning and breaking the filling before the change. It was discovered that a battery disc was being used that had too large an opening for the base of the bobbin; the bobbin was too loose in the disc and was turning. After changing the disc the trouble was greatly alleviated. Later on an eccentric pin was used on the pawl in the battery. O. E. Bishop, Inman (S. C.) Mills, advised that if the bobbin is not in line in the battery and if the transfer spring is not tight, the bobbin will turn in the battery.

The next question asked for a method of eliminating occasional floats on the back side of the cloth. Mr. Simmons said that this is a condition of the harness setting and if this is corrected much of the trouble will be eliminated. He further explained that gouts in an end of warp will make the end next to it skip, and perhaps the end skipping is coming off the beam faster than the others, causing it to be slack. A representative of the Drayton Mills explained that the skipping could be caused by the harness being overloaded and the straps not balanced so that they are slack at times, causing the harness not to raise high enough and allowing floats.

The next question discussed was on the causes of filling jerk-backs on looms without feelers. W. B. Williamson, Monarch Mills, Union, declared that it is necessary to have a good thread cutter, have the shuttle boxes smooth, binders in excellent condition, and a smooth picker. The picker stick should be cut off at the top and there should be no splinters on the stick. "Of course," he added, "take care of the power on the loom." Another man mentioned weak filling as the cause of jerk-backs.

Mr. Lockman, who does not use feelers on his looms, said one of the main causes of jerk-backs is the shuttle spring not being aligned properly. It may be too high or too low, or too much to one side, or too loose. Another cause as explained by Mr. Lockman is the filling fork going too far through the filling grate. R. E. Dill, Camperdown Co., Inc., Greenville, said that the filling jerks-in on the bottom of the shuttle on a loom equipped with a magazine, and asked for a method to stop this, but no one present offered any information on preventing jerk-backs on magazine looms.

W. E. Tarrant, Clemson College textile school, announced the use of a bobbin guide plate of a different shape which allows the quill to drop faster into the quill can. He has had experience with this type of plate and has found it satisfactory. It was also brought out in the discussion that when a feeler is used, often the temple knife is not timed early enough to cut the filling. It should be timed to cut the filling when the quill drops, it was stated.

A discussion of rubber-and-fabric pickers was prompted by the last cotton weaving question on the prepared questionnaire: *Does the Denman picker have any advantages over the leather picker?* A representative from the Ware Shoals (S. C.) Manufacturing Company reported that the Denman picker has been in use at his plant for about two years and it is giving better service and longer life than leather pickers, with less jerk-backs. Ray Swetenburg, superintendent at Ware Shoals Manufacturing Company, added that the picker cost at his plant is about 50 per cent less with the new pickers than when leather pickers were used. He emphasized that the main points in using the rubber-and-fabric picker are to get the right size loop in the picker and to have sticks and pickers that fit properly.

Discussion on Results and Costs with New Type Loom Pickers

A question was asked whether the shuttle cost (or consumption) is greater with these pickers. Mr. Swetenburg maintained that the shuttle cost before using the Denman picker was not very good, but that it has not increased any since using it. He explained that the all-rubber picker caused the knurl of the shuttles to become loose, but the Denman picker has a mixture in it that prevents this occurring. J. H. Burgess, Woodside Cotton Mills, Fountain Inn, said that the first of this type he used did not give service, but that they have been improved and now they are satisfactory; also, he believes they are better than leather pickers on high speed looms. He further advised that there are some conditions where the rubber-and-fabric picker is not suitable; when the size of the shuttle and lay-end has been changed, it throws the point of the shuttle off center and the leather picker is more suitable, he declared. The Denman picker has the hole bored, which designates the position of the point of the shuttle, but the company also makes an offset picker to fit the point of the shuttle where the size shuttle has been changed, it was explained. F. D. Lockman said his mill has been using the Denman type picker for three years and has found that the average life of the picker is 9 months, and that the cost is about 50 per cent of that of the leather picker. Another member has run it on 64-inch looms and finds his picker cost has been reduced about 75 per cent.

Information was requested on pickers bored with the hole off center in connection with oversize shuttles. One man reported using the off-center picker and is getting good results. Mr. Lockman has been using oversize shuttles for 6 years and has not found it necessary to use any special boring of the picker. In connection with the Denman picker, one man suggested that the screw holes be countersunk so that the screw head would not protrude.

Several questions were passed to the chairman, who added them to those on the prepared questionnaire and extended the discussion. The first asked how many loom stops per hour would be considered good running weaving on 64x60 and 68x72. Mr. Lockman said that .4 stops per loom per hour is considered good on 64x60 and .45 on 68x72. Ideal would be about .27. These figures were reported by others as being in line with theirs.

One question submitted concerned the care and dressing of belts driving looms. F. D. Lockman, Jr., Monarch Mills, Lockhart, said that in his plant the face of the belts are dressed once every two weeks and that starch is never put on the belts. The loom fixers clean the backs of the belts once a week, and the power straps on the looms are never changed to make them run smoother, once they are set in accordance with mill rules.

Next discussed was the practice of using two or three bars of drop wires in the stop motion, especially when changing from 64x60 to 80x80. If the change from a pattern of 64x60 to 80x80 could be made without losing the pattern, it would be a great saving in cost. A member reported having run 80x80 with the 2-bar stop motion then changing to the 3-bar stop motion and increasing the production by two per cent. Mr. Lockman said that it is not necessary to lose the

(Continued on page 68)

CURRENT TEXTILE TOPICS ....

Talk of the Month

GOVERNMENT FIGURES on April cotton consumption, issued in the middle of May, were significant of things past and things to come. A story of the cotton textile market is to be read out of consumption at 414,392 bales for the month. For this contrasts with 718,975 bales in April last year and the monthly record for all time of 767,942 bales in March, 1937, and marks the lowest total of any month since way back to August, 1935.

Foundations for a new textile cycle laid

April's low record is the final emphatic response of the cotton industry to the uncertainty of the Roosevelt depression, as well as the extreme of reaction from the abnormal peak in the spring of last year. May being a longer month and the tide of curtailment finally appearing to have reached the lowest ebb, we presumably will not find the next government report showing quite such small figures.

For a month or more it has been apparent that the steady consumption of finished goods at last has removed the burden of excess production in 1937. Mills a half a year ago or more took steps to offset that development, but as we have stated before the recession was aggravated by outside developments and the cotton industry found itself faced several months longer by unforeseen intensification of the depression.

Inventory Goes Lower

Early in the present calendar year it became obvious that the spring season was in jeopardy. Fortunately the need of curtailment in production was broadly realized and the mills continued adjusting their schedules until May. The last and drastic retrenchment move by the big print cloth division is reflected in a fall of nearly 100,000 bales in cotton consumption during April, the March total being 510,941 bales.

Under the unsatisfactory conditions prevailing for all business at the start of 1938, market opinion leaned toward the idea that the burdensome surplus of cotton goods would hardly be eliminated within the first half of the year. In this opinion the trade has been happily disappointed. Dollar volume of retail sales in cotton merchandise has decreased sharply from that of 1937, but quantity has been only moderately decreased.

Thus by the middle of May, helped along by the maintenance of mill schedules kept down rigidly to demand for new production, the market gave signs that surplus was becoming negligible. Instead of July, it looked as though June would mark a definite emergence from the aftermath of 1937 overproduction. In fact the primary market for goods was beginning to show actual shortages in various constructions of gray goods.

Such factors as this statistical condition, the entrance of the government into the market for substantial quantities of cloth and the refusal of mills to anticipate buyers' needs with manufacture for stock led to another start of activity in the past month. Two or three incipient movements had been started previously this year, but disappointments followed. However, the general business sentiment had at least an underlying optimism in May whereas that was not previously the case.

Individual lines of business hesitate to act on their own fundamental conditions apart from other activities, in a period of prevailing hesitation. Thus a depression is extended beyond reason. In many lines, including cotton manufacture, the spring marked a full year of liquidation. That occurred both in prices and inventories, the counterbalance to somewhat of an orgy of speculation the previous spring.

New Cycle on the Horizon

Such a swing produces the foundation for a new cycle and for many weeks conditions have looked ripe for the upward turn in activity and prices. Complications of unusual nature delayed the normal resurgence of business and stabilizing of prices. The economic-political imbroglio protracted hesitation. It seems to be felt that business is at last headed for activity and soundness, though mills will need some time to balance losses of the long decline.

Changing general business sentiment happily has coincided with the time of peak demand for cotton merchandise, May and June. That is the reason for the time of National Cotton Week and this year the promotion was supported more than ever by distributors, a circumstance which may show its results in the mill situation now developing. Much hope will be placed in the broad industrial advance of the country, for on that depends a well-rounded movement of cotton goods.

Among the encouraging emanations from the spring meeting of American Cotton Manufacturers Association was a spirit of independence; an expression of feeling that the mills should rely on themselves and not expect the government to help the industry. The attitude toward relations with the government went further to the point that mills should not only assume full responsibility for their progress, but should act concertedly for protection of private rights and initiatives.

UP TO THE TIME of the mid-May spurt in printcloths, the market for combed fine cottons and other constructions made by mills of New England continued its desultory course. This section profited little by the April and previous brief periods of activity in gray goods. During the past month, however, a more optimistic feeling has been growing in regard to the coming months and the prospect of a good fall business.

Conditions of the Pacific Mills, Manchester, N. H., point the difference between this spring and the fall of 1936. This former big unit of the Amoskeag Mfg. Co. was added to other plants of the Pacific when the inflationary movement got under way and New England capacity was expanding. The unit got into action on the heavy business the first part of 1937 and ran actively for months, but this year its operations have been intermittent.

New England Mill Situation

Returning to work late in April after a week's shutdown, the 1000 or so employees of the division were notified to run out the work in preparation for another shutdown. An official of the company said that the uncertainty of general conditions at that time made it impossible to predict when the mills would reopen. New England cotton mills in general were figured to be operating around 50 per cent of capacity.

Curtailment—Weapon of Defense

Broad curtailment, nevertheless, has been an encouraging feature of the situation. This has given the mills of the district a weapon of defense against buyers constantly seeking greater bargains in a dull market. Some market reports suggest that mills will get out of unprofitable levels of prices by July. The northeastern division of the industry stands to be in the forefront of such recovery.

Forward Step in Labor Arbitration

More outstanding than market developments of May and something fraught with interest to the nation was the new compact in New Bedford between mill management and workers. Not only did labor and management get together on an agreement to bar strikes and lockouts, through compulsory arbitration, but they did it without intervention from outside. It was an agreement by local workers with local management.

On the one side was the New Bedford Textile Council and on the other the New Bedford Cotton Manufacturers Association. About 20,000 workers were represented by the council, an independent group which the mills recognized as the sole bargaining agency for the employees. The association takes in nearly all the mills of the city.

Independence by the local workers came about through a difference with the CIO early this year. Wage reductions were negotiated last January by manufacturers in conference with representatives of the several craft unions. These unions were technically in the CIO and their secretaries were suspended when officials of that body learned that they had so negotiated. The unions, including the suspended secretaries, then proceeded alone under their council to make the agreement recently reached.

This move has been hailed in the press as an example of industrial statecraft and, if successful, a modus operandi for the country to adopt. William E. G. Batty, secretary of the textile council, characterized the plan as a "Magna Charta of industrial self-government".

Under the pact the council is officially recognized as the sole bargaining agency. Seniority rights are set up on a new basis. The wages are on the reduced basis of the January agreements. Forty hours constitute the standard work week, with time and a half for overtime except for maintenance men and shipping department workers, who are allowed a "tolerance" of four hours a week.

Piece work rates are to be such that at least 60 per cent of the workers in any one type of work shall earn at least the base pay on full jobs and if they cannot the rates shall be adjusted. It is also agreed that preference in hiring will be given union workers in departments where 100 per cent are members of the craft union and suitably qualified workers are available.

Machinery is set up for investigation, arbitration and enforcement of resulting decisions on complaints. Findings will be retroactive to date of complaint. The only exception to the "no strike" rule would be a strike or lockout for enforcement of a decision by the arbitration agency.

"THE SITUATION"

As Seen Across an Executive's Desk

May 18, 1938

THIS TIME last month the wage-hour bill was definitely on the shelf. Along came Pepper's reelection in Florida and pop—goes the weasel! For, almost instantaneously, President Roosevelt, already enroute to enjoy an Atlantic fishing cruise, shattered all precedents by wiring, from Charleston, Congresswoman Mary Norton, chairman of the House Labor Committee, urging her to place the bill before the House without further delay, thereby pledging his powerful backing to the present version of the legislation. Therefore, it is practically acknowledged that we will have, despite rumored senatorial filibuster, the wage-hour passage this session; that it is a must-bill because of pressure groups which determine elections in many states, such as, for instance, Pennsylvania.

The Wage-Hour Bill

Under present writing the bill empowers a Federal Bureau to determine the conditions under which goods of any kind might be produced in any State, and to enforce those conditions by preventing the shipments of such goods outside the borders of any state in the event the conditions are not complied with.

The bill has been described as a proposal to extend the protective tariff system to interstate commerce. It is—and as such is a coercive, trade-restricting measure.

On the other hand, any definite establishment of a ceiling and a floor for hours and wages will eliminate the chiseling population from the textile industry, and thereby erase one of the greatest evils we must contend with. We only wonder if the result will be justified by the means.

Pepper's re-election and its resultant influence on the status of the wage-hour legislation is only one point. It certainly placed the President in a better tactical position in his dealings with Congress, and seemed to back up his perennial argument that he speaks "for the people" and that congressmen who seek to differ with him do so at their own political risk.

Are You a Monopoly?

Another legislative blast, but one which will hardly be important this year except as pointing the way for vital Rooseveltian plans for next year, is that statement made by Mr. President on monopolies. One particular passage is quoted for benefit of the many trade associations affiliated with the cotton textile industry—associations which have done much to bring the close co-operation between this industry and the administration which has been so notable, particularly so in Code No. 1 and other similar ways:

"Supervision and effective publicity of the activities of the trade associations, and a clarification and delineation of their legitimate spheres of activity which will enable them to combat unfair methods of competition but which will guard against their interference with legitimate competitive practices."

Trade associations had better look to their laurels and mend their fences before too long—if one is privileged to use mixed metaphors.

NLRB Developments

An interesting development concerning the National Labor Relations Board was its move—after the U. S. Circuit Court of Appeals in Philadelphia denied it permission to re-open its case against Republic Steel Corporation—petitioning the Supreme Court for a writ of mandamus. The NLRB wants its authority defined. The Board's quick move, in this matter, toward the Supreme Court where it has won every test up to date, had the effect of making the Republic Steel controversy the pivotal case in the latest series of legal maneuvers over its powers.

Of particular interest to manufacturers is the holding of the Second Illinois Appellate Court in that sit-down strikes are illegal and the Wagner Labor Relations Act is no protection for strikers who violate state laws. This was a unanimous decision on the part of the three judges. The Court upheld the Lake County Circuit Court in imposing fines and jail terms upon two CIO organizers and 37 sit-down strikers last year for refusal to vacate the plant of the Fansteel Metallurgical Corp. (Chicago) until police drove them out with tear gas bombs.

Fair Trade Practices

The Federal Trade Commission has set for one of its greatest achievements the proper marking of domestically made goods of all types. Hearings on the Fair Trade Practices of the National Association of Hosiery Manufacturers was held in Philadelphia during the Knit Goods show. Other hearings will be held in other lines at a date to be announced later. At the hosiery hearing one important point was brought out: that cotton goods should not be labeled simply "cotton" but should be more specific stating whether the goods were made of "combed cotton" or "carded cotton", the process denoting to great extent the quality. This will entail an educational program for the consumer, but it will in the long run answer the purpose behind the Federal Trade Commission's drive, for not until the retail consumer, Mrs. Housewife and Mr. Average Man realize that, for instance, a pair of black cotton hose which in appearance seems to be similar to another pair of black cotton hose may in reality be a shoddy imitation of its high-grade competitor and entirely unsuited for wearing qualities. A pair of woodman's cotton hose, being made of heavy carded yarn, and a pair of combed cotton mercerized lisle hose are both cotton socks, but in no way comparable in appearance or in purpose.

One of the more interesting events of the month is the visit to this country of a British delegation of the Textile Institute of Manchester, England. The purpose of the delegation is to approach the 56 American members of the Institute of Manchester and various technical textile organizations in this country, interested in testing and research, with a view to developing closer co-operation between the English society and similar American organizations.

And now, getting down to actual manufacturing brass-tacks: Last month things looked very, very black indeed in general textile pictures. During the month unfinished cloth prices were practically unchanged with few sales at slightly reduced prices. Distress sales were being flagged as market prices and mill margins averaged 10.97 cents for April as against 11.16 cents in March and 18.58 cents in April '37.

Raw cotton consumption was at the rate of about one-third less than the same time last year and planned curtailment threatened to pull consumption marks even lower.

Last month stocks of all kinds had reached all-time peaks.

Last month the print cloth group was just embarking on its thirty-day curtailment schedule; its proposal to eliminate the third shift was held as an unemployment threat.

A Better Feeling

Despite that background, however, this month there is an undercurrent feeling of uplift. This month with the results of the curtailment program already showing up in decreased stocks; with the results of the third shift elimination showing up in future calculations on stocks available, with the retail and wholesale inventories smaller than this time last year; there is bound to be a resumption of the flow of cotton goods from manufacturer to consumer by fall at the very latest. Those who have been in the business of textiles for the last 40 years say that we have "skipped a whole year" in booking business. Now that the year is past, it is perfectly natural for business to start moving again, and with the first good orders the last few months will be forgiven, if not forgotten.

Cason Callaway Retires; Other Changes in Callaway Mills

DRASTIC CHANGES in the executive and operating personnel of Callaway Mills, LaGrange, Ga., were announced following a meeting of the board of directors on June 3.

Cason J. Callaway, who was president of the company and executive head until 1935, and chairman of the board since that time, retired from this position and from the board and from active duty.

Fuller E. Callaway, Jr., president since 1935, continues in that position as chief executive officer.

Seven vice-presidents—S. Y. Austin, C. W. Coleman, Hatton Lovejoy, James Newsom, B. N. Ragsdale, William H. Turner, Jr., and Henry G. Smith, each with a service record of more than 20 years—resigned from active duty to assume less active duty as members of the board of directors.

A. B. Edge, Jr., resigned as secretary of the company and was elected vice-president in charge of purchases. R. D. Williams, Jr., who has been in charge of consumer sales, was elected a vice-president, and will be in charge of all sales.

Mr. Edge, and Ely R. Callaway and M. M. Trotter, vice-presidents, and J. K. Boatwright, treasurer, resigned from the board of directors, but will remain active as officers. Ely R. Callaway will continue as vice-president and credit manager, Mr. Boatwright as treasurer; and Mr. Trotter, who has been in charge of manufacturing, will continue as vice-president in another capacity.

The new arrangement provides no active officer, except the president, is a member of the board of directors; and no other board member is an active officer.

C. M. Geer resigned as assistant vice-president, and will be connected with the sales department.

Hal Daughdrill is Now General Superintendent

A number of changes were made in the operating organization. The three group general superintendencies, created last year under Mr. Trotter, and held for the past 10 months by W. P. Dunson, B. W. Robinson, and T. B. Kersey, were eliminated. J. Hal Daughdrill, for the past 10 years superintendent of various plants of the company, most recently the Manchester and Calumet LaGrange plants,, is now general superintendent of all plants, with headquarters in LaGrange. B. W. Robinson will devote all of his time to the Milstead (Ga.) plant, moving his residence from LaGrange to Milstead. T. B. Kersey has been made superintendent of the Hillside plant, succeeding T. L. Arnett, who becomes technical superintendent at Hillside. Lamar Moore has been promoted from overseer of weaving to superintendent of the Manchester plant, succeeding Mr. Daughdrill.

P. N. Collier, vice-president, who has been in charge of the general staff, will devote his entire time to research work as director of research.

A consolidation of all engineering and maintenance work has been made, placing the village maintenance and mill maintenance in LaGrange, all routine engineering, technical, testing and central inspection under Clarence J. White, Jr., chief engineer, who will report to Mr. Daughdrill, the general superintendent.

Atlanta Bank Salutes National Cotton Week

A STRIKING SALUTE to National Cotton Week, which was a forceful and impressive presentation of Georgia mill products, was an exhibit conceived and presented during the week of May 30-June 4, by the Citizens and Southern National Bank, in Atlanta.

A display of the products of more than 30 Georgia textile mills occupied the main banking lobby of the bank for the entire week, and presented impressively to the thousands of bank customers and visitors a visual demonstration of the variety, extent, quality, and utility of the products of these mills.

In keeping with the bank's recognition of the vital importance of the industry to the state, H. Lane Young, executive vice-president, made the block-long lobby of the bank available for the exhibit, and invited the mills to participate without expense.

The accompanying photograph shows the exhibits on one side of the display; it was a valuable contribution to the cause of cotton goods promotion, and an evidence of the bank's enterprise and spirit.

COMMENT on the Cotton Market

New Orleans, May 14, 1938

ALTHOUGH THERE WAS IMPROVEMENT, except in Spain, in the European political situation, and while there were prospects of co-operation between big business and the government, the trend of the cotton market, except for periodical bulges, continued downward, values compared with one month ago, showing moderately lower. Poor trade advices, small consumption, large supplies and a small demand for the raw and finished product remained depressing influences, the loan value being the principal sustaining factor in the market at present. However, it is possible there may be a favorable change in trade and sentiment when least expected in event of something of a constructive nature coming to the surface, for while the statistical position of cotton appears bearish, a large portion of the surplus of American is under government loan control.

Covering the week ended May 11, Washington press advices were to effect that wholesalers received a moderate call for most lines of goods in the New York market. Manufacturers of various lines reported some evidence of increased inquiries, although few materialized into sizeable orders. The opinion was expressed that if business can be sustained at its present gait over the next few months, improvement of more than a seasonal nature should follow. Just now, the report stated, it is largely a question of using up surplus stock and again converting the public to a buying mood. On the other hand, the Chicago wholesale market seemed to be in the doldrums, with road salesmen reporting the stiffest sales resistance in months. However, reports were general that *retail inventories are exceedingly low.*

Recently the New York Cotton Exchange Service virtually confirmed the recent bearish consumption and carry-over predictions of the U. S. Bureau of Economics. This service estimates world consumption of all kinds for eight months ended March 31 at 18,132,000 bales compared with 20,449,000 during the previous season, of which 7,695,000 were American, compared with 8,698,000 last season, and 10,437,000 of foreign growths compared with 11,751,000 last season. It also estimates this season's world's consumption of all kinds between 26,700,000 and 27,100,000 bales compared with 30,991,000 consumed during the 1936-37 season, and predicted a carry-over of all cottons of between 23,100,000 and 23,500,000 bales. The carry-over at the close of last season was 13,300,000 bales. The American carry-over, that is the carry-over of American, it is estimated will be 13,200,000 and 13,400,000, and the carry-over of foreign growths between 9,900,000 and 10,100,000 bales. It was pointed out, however, that the CCC already controls nearly 7,000,000 bales of the prospective carry-over of American which will not become available without repayment of the 9 and 12 cents loans and all carrying charges, of which, so far, 5,356,000 bales are of last year's crop.

The Commodity Credit Corporation reported loan completions for the past week at 15,603 bales as compared with 2,906 the preceding week. The increase for the week as compared with recent periods was attributed to the decline in the price in early part of week. If the market remains down, more cotton is likely to find its way to loan holdings, especially if values work lower.

At the moment there is some indication of the probability of a revival in the demand for cotton goods, perhaps for raw cotton also, particularly if crop advices become more unfavorable. Latest advices from the goods markets are to effect that trading is becoming active again, with prices firm to higher. Sales for the last three days were estimated at 25,000,000 yards.

As yet advices from the interior remain generally unfavorable owing to complaints of low temperatures, slow germination and growth, and reports of too much rain in localities. Apparently it would not take much in the way of trade betterment to engender a better feeling generally, especially in view of the government's contemplated large relief program, which is expected to increase purchasing power and industrial activity. Meanwhile much interest is centered on the proposed wage-hour bill, which is expected to be up for consideration in the near future.

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption of lint in Cotton Growing States, April	352,000	596,000
In New England States, April	50,000	99,000
In All Other States, April	12,000	24,000
In the United States, April	414,000	719,000
In the United States, March	511,000	777,000
Consumption of lint in Cotton Growing States, 9 months	3,773,000	5,014,000
In New England States, 9 months	546,000	810,000
In All Other States, 9 months	119,000	193,000
In the United States, 9 months	4,438,000	6,017,000
Mill stocks, April 30	1,703,000	1,987,000
Stocks in public storage and warehouses, April 30	10,486,000	4,215,000
Stocks in mills, public storage and warehouses, April 30	12,189,000	6,202,000
Stocks in mills, public storage and warehouses, March 31	12,728,000	7,114,000
Active spindles in Cotton Growing States, April	16,428,000	17,761,000
In New England States, April	4,758,000	6,219,000
In All Other States, April	600,000	747,000
In the United States, April	21,786,000	24,727,000
In the United States, March	22,288,000	24,640,000

BRITISH BOARD OF TRADE REPORT FOR APRIL

Year—	1938	1937	1936
Exports of yarn, pounds	10,000,000	15,000,000	13,000,000
Exports of cloth, yds.	115,000,000	165,000,000	141,000,000

AMERICAN COTTON

August 1 to May 13— Bales—	This season	Last season
Brought into sight (marketed)	14,742,000	13,341,000
Exports from the United States, including Canada	5,415,000	5,182,000
Spinners takings, world	10,369,000	12,359,000
Stock at all U. S. ports, May 13	2,709,000	1,505,000

WORLD'S VISIBLE SUPPLY OF COTTON

American— May 13— Bales—	This year	Last year
Stock at U. S. ports	2,709,000	1,505,000
Stock at 102 interior towns	2,928,000	1,348,000
Afloat to and at ports of Europe	1,463,000	969,000
Afloat to and at ports of the Orient	269,000	576,000
Total American	7,369,000	4,398,000
Total other kinds	2,309,000	2,330,000
Grand total all kinds	9,678,000	6,728,000

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES

Year—	1938	1937	1936
April	3.47	0.99	1.68
November 1 to April 31	16.83	9.88	9.23

Fraser Now with Atwood

Atwood Machine Company, Stonington, Conn., has announced the appointment of William McL. Fraser, formerly assistant general manager of H. & B. American Machine Co., and Fales & Jenks Machine Co., to a position with Atwood in which he will take an active part in the Atwood company's recently expanded engineering, research and development program.

What the Southern Mills are Doing

Joy Silk Mills, Inc., Hartsville, S. C., organized two years ago by S. C. Gilbert, president, and H. P. Southerland, manager, to throw silk yarns for the knitting industry, has again doubled its capacity. The original equipment for the mill was bought through W. A. Kennedy Company, Charlotte, N. C., and since that time Kennedy has furnished equipment to enlarge the plant. Recent new equipment consists of Apex high speed twisters to run 17,500 r.p.m., and Duplexes designed to run 10,000 r.p.m. The new Simplex double-deck winders are also installed. All of these machines are manufactured by Fletcher Works, Philadelphia, Pa.

According to reports from Dalton, Ga., plans have been made for expansion in the chenille bedspread area of that section. It is said that 100 more machines for making chenille bedspreads will be installed at the plant of Carter Brothers. A new bedspread plant will be started at Ringgold, Ga., by Blair Cannon. Lawtex Corporation is building a new plant. Blue Ridge Bedspread Company is considering the erection of a much larger plant.

Batesburg (S. C.) Print Works, is the name of a new concern expected to be located at Batesburg in the near future. The plant, which will be a one story building, 250x200 feet, will print and finish goods. It is expected to be located on Lightwood Knot Creek, about 6 miles from town. Application for charter bears the names of Harry Hintze, Camelia C. Miler, and D. W. Robinson, Jr.

Highland Park Manufacturing Company, Plant No. 3, Charlotte, N. C., has installed new converters, which are a part of the modernization program under way. Saco-Lowell long draft spinning and 100 new 4-box looms have been installed. The card room machinery has been overhauled. The dwellings in the village are being remodeled and repainted.

Rosemary Manufacturing Company, Roanoke Rapids, N. C., has work well under way on the construction of an addition which represents an expenditure of more than $60,000. The new building is to be three stories. Plans were prepared by J. E. Sirrine & Company, textile and industrial engineers and architects, Greenville, S. C.

Dunean Mills, Greenville, S. C., are installing the new raw stock Duplex dryer and raw stock squeeze rolls that are hydraulically controlled. This equipment is made by James Hunter Machine Company, North Adams, Mass., and is built especially for drying cut staple rayon.

In line with the modernization program that has been going on at Santee Mills, Orangeburg, S. C., for some time, the Orangeburg unit of the mills will have two Diesel engines installed to replace the steam engine that has been in use for a number of years.

A charter has been granted the Raleigh Mills Company, Raleigh, N. C., which will take over the buildings and property of the old Caraleigh Mills near Raleigh. Upholstery materials, plushes, casket coverings, and other materials will be made.

It is said that the promoters of the rayon plant planned for Giles county in West Virginia have made application for a RFC loan for the purpose of getting the work under way this summer. If granted, work will begin immediately.

Wiscassett Mills Company, Albemarle, N. C., has had an improvement program under way for a number of months, which represents an expenditure of $400,000. 42 new Kalio machines replaced old units at the mill.

Rhodes-Rhyne Manufacturing Company, Lincolnton, N. C., a newly organized concern, has installed modern machinery in the plant and has begun manufacturing chenille and candlewick bedspreads.

Work has begun on a brick addition to the weave shed of the W. A. Handley Manufacturing Company, Roanoke, Ala. It is being built for relocation and rearrangement of the machinery.

The A-Q Silk Mills, Timmonsville, S. C., have begun operations. The mill is located in a former warehouse that has been air conditioned.

Work has begun on the addition to the Cannon Mills bleachery, Kannapolis, N. C. The addition will be used as a storage room.

Avondale Mills, Sylacauga, Ala., are reported to be buying looms and additional machinery in a modernization program.

Elko Company, Elk Mills, Md., is a new organization which will operate a dyeing and finishing plant.

Work of Textile Foundation to Be Basic in Nature

At a meeting of the Board of Directors of the Textile Foundation held in Washington recently, it was decided to concentrate the future work in scientific research on studies of those fundamental problems which are basic to the entire industry. To this end, allotments of funds have been made on a long time basis and a group of advisors has been appointed to plan and establish the scientific research program. R. E. Rose, director of the Dupont Technical Laboratories, Wilmington, Del., is chairman; the members are Harold DeWitt Smith of A. M. Tenney Associates, New York; Alban Eavenson, Eavenson and Levering, Philadelphia; H. S. Taylor of Princeton University; Warren E. Emley, National Bureau of Standards; and A. G. Black of the Department of Agriculture. A large part of this work will be done at the National Bureau of Standards, but certain fields have been set aside for Lowell Textile Institute, Massachusetts Institute of Technology and Yale University.

The Textile Foundation was created by Act of Congress and its purpose is for economic and scientific research for the benefit of the Textile Industries. The members of the Board of Directors are: Frank W. Hobbs, Boston; Frank D. Cheney, Manchester, Conn.; Stuart W. Cramer, Cramerton, N. C.; the Secretary of Commerce and the Secretary of Agriculture.

◆

Textile Institute Delegation from England

The Textile Institute with headquarters in Manchester, England, and with members all over the world, including 56 members in the United States, sent a delegation composed of Frank Nasmith, president-elect, and J. R. S. Goodall, chairman of the diplomas committee, to the United States during the last week in May and the first week in June. The purpose of the delegation was to contact the American members and the various technical textile organizations in this country who were interested in testing and research with a view to developing closer co-operation between the English Society and similar American organizations. They planned to test out the sentiment of American members with regard to the organization of an American section and to study the possibility of instituting the examination system for the diploma for Textile Technologist which distinction has attained recognition throughout the world. The Textile Institute has lately broadened its activities to include work on standardization of test methods.

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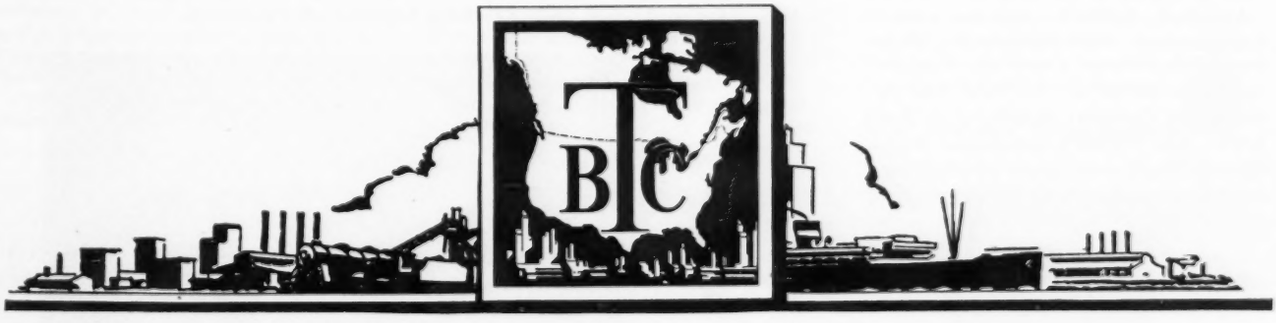

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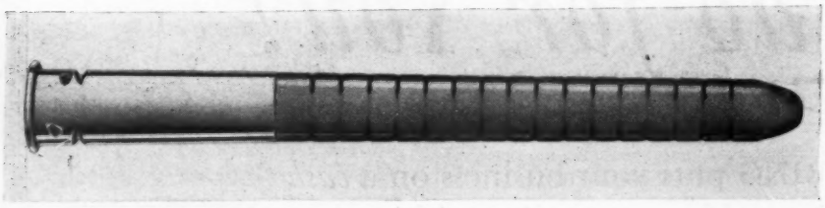
NEW ENGLAND REPRESENTATIVE: EDMUND H. LELAND, CHAMBER OF COMMERCE BUILDING, BOSTON, MASS.

New Textile Equipment and Materials

Flat Paper Bobbin

American Paper Tube Company, Woonsocket, R. I., has developed a new flat paper bobbin, hardened and impregnated, which can be furnished with short or long metal ferrule for mechanical or electrical feeler motions. It is said that the patent office has allowed claims in connection with this invention. The bobbin is made so that its periphery is concentric with the hole, which is said to assure a firm uniform package which will align perfectly in the shuttle. It is flat on two surfaces and has well rounded edges. The barrel is made by winding under tension a specially selected paper in successive layers around a steel arbor which corresponds to the spindle on a winding machine. Each layer is glued into place. Later the tube is impregnated and hardened to give added strength, durability, and imperviousness to moisture. Other advantages of the bobbin according to the company are light weight, perfect balance, absence of static, high resistance to splintering, smooth corrugations, and low ultimate cost.

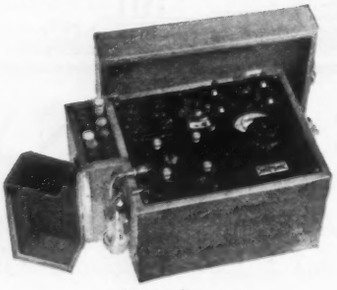


Flat paper bobbin

◆

New Universal pH Indicator

Leeds & Northrup Company, 4934 Stenton Ave., Philadelphia, Pa., have recently introduced a new universal pH indicator, shown for the first time at the recent Chemical Exposition in New York. The versatile instrument reads directly in pH with glass, quinhydrone, hydrogen, or any other electrode following the Nernst equation. It is equipped with a voltage scale as well as a pH scale, and it is also used in oxidation-reduction potential measurements, and in current and resistance determinations. It can be used with external circuits of much higher resistance than the 100 to 300 megohms of glass electrode which is supplied with it. The newly-designed glass electrode is small, comparatively rugged, and requires only a 5 ml sample for measurement. Everything necessary for glass electrode measurements is included with the instrument. Other features include quartz insulation, a separate battery compartment to prevent corrosion, and the ability to make sodium corrections directly in pH units when necessary.

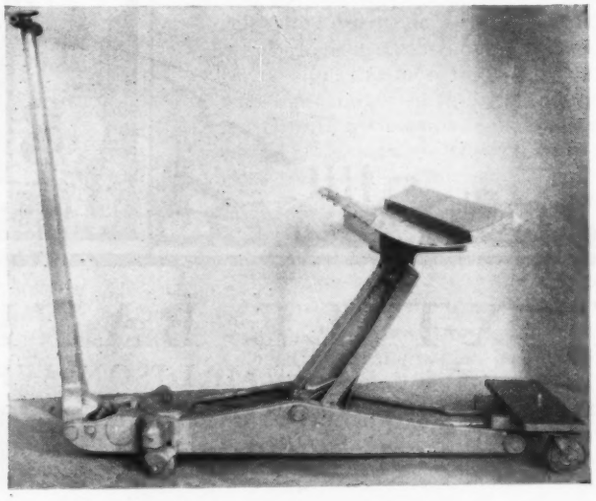


pH indicator

◆

Stackbin Hydraulic Loom Beam Truck

Stackbin Corporation, Providence, R. I., has developed a new hydraulic truck for lifting warp beams into looms. With the advent of larger loom beams, there is less alley space for the transportation of the full beams to the looms, so this truck has been brought out to handle the beams and raise them above the level of the narrow part of the warp alley. The trucks are so designed that they will handle any length or diameter beams, and have an extreme lowered height of 8 inches from the floor and a raised height of up to 28 inches. The total width is 16 inches. The new features of this truck are the revolving cradle and swiveling casters, with provision for locking rear casters. This feature permits the trucks to be easily moved around sharp corners and through narrow aisles. The revolving cradle also eliminates labor by lowering the beam directly into the loom journals, making brackets unnecessary.



Right, showing the hydraulic loom beam truck with the cradle in the elevated position.

◆

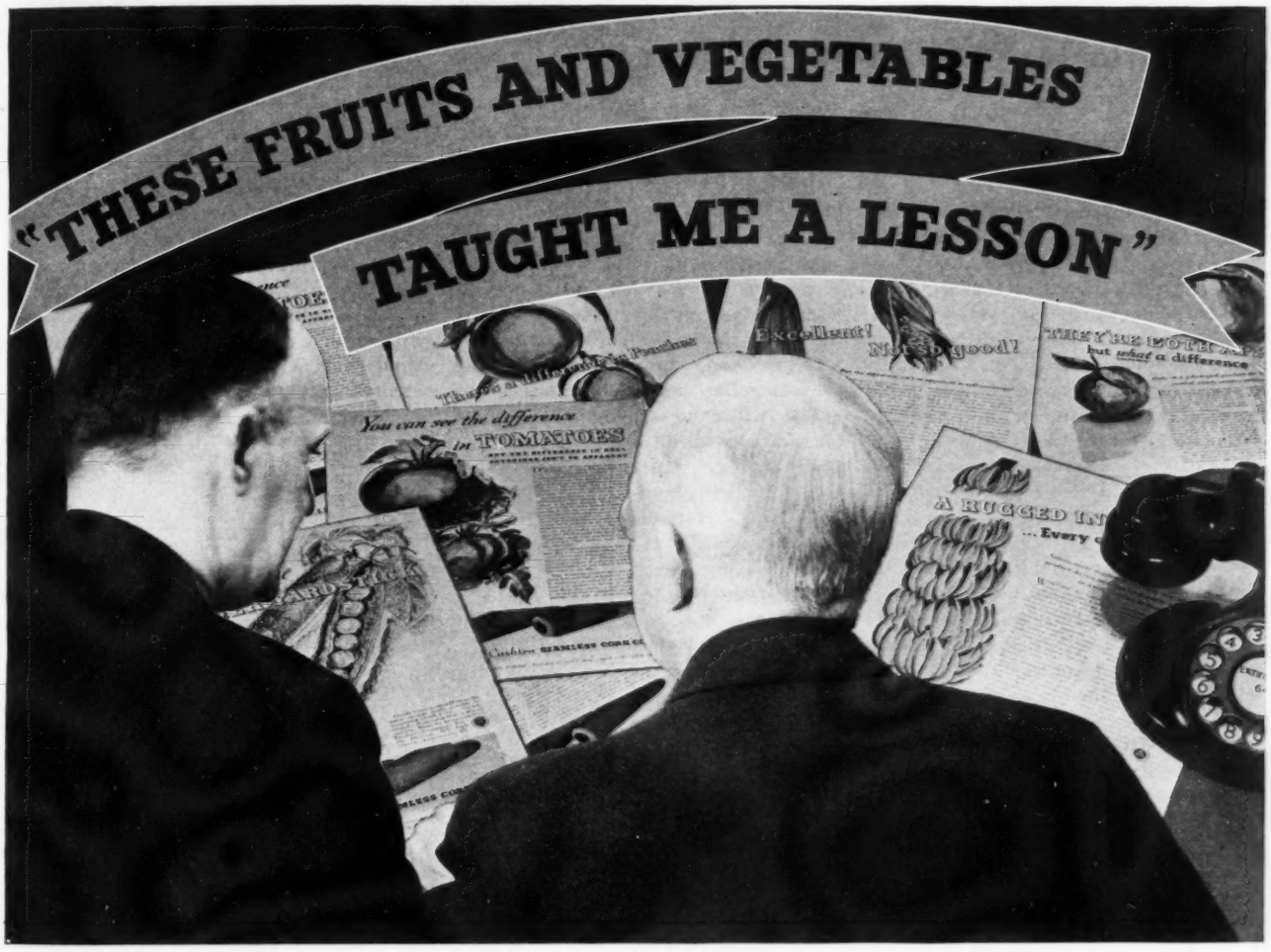
New Conveyor Belt

U. S. Rubber Products, Inc., Mechanical Goods Division, 1790 Broadway, New York City, has designed the new crepe finish package conveyor belt for conveying various types of packaged material on a greater degree of incline than is normally encountered in regular conveyor work. The new belt is said to provide a great degree of efficiency for all incline service requirements and has a crepe surface of remarkable holding qualities. It is available on 28-ounce and 32-ounce duck with the special crepe finish cover on the carrying side. Minimum top cover thickness is 1/16-inch, and this may be increased as required.

◆

New DuPont Products

E. I. DuPont de Nemours & Company, Inc., Wilmington, Del., have announced new dyestuffs, a new pigment color, and a textile assistant. New dyestuffs designed for use in the textile, printing ink, lacquer, paint, and similar fields are Lithosol Yellow G Concentrated, which is non-bleeding in water; Monastral Fast Blue GS, a new pigment color; and Sulfanthrene Scarlet 2 BN Paste, primarily of interest for printing delustered rayon. The new textile assistant is known as Ondal A and is designed to serve both as a detergent and oxidizing agent in the developing of vat colors.



"Only in a fabricated product can I get the uniformity I need in a roll covering."

"AT first I couldn't figure out why the Armstrong people were putting apples and peaches and ears of corn in their ads. But then I got the point—and learned a lesson that's saving me money.

"What was this lesson? Simply this. Nature never duplicates. Only in a fabricated material do you get the absolute uniformity you must have in a roll covering if you want good running work, strong, uniform yarn, and low roll covering costs. That's why cork is in my mill today."

Through every exacting step of manufacture, Armstrong's Cork Cots are *scientifically* controlled. This means that each cot is an exact twin to every other cot, uniform from end to end, and uniform throughout its entire wall thickness, not in just a thin outer layer. Because of this uniformity, an Armstrong's Cork Cot can be precision-ground or buffed to a true and concentric finish—an important factor in spinning quality yarn. Another advantage is that after serving its normal life on the spinning roll this cot can be made new again and again, simply by rebuffing.

You pay nothing extra for the advantages of Armstrong's Cork Cots. First costs of cork are no higher than for other roll covering materials. The rebuffing feature is your guarantee of continued roll covering economy. And there's an extra saving in lower assembly cost to add to your operating savings.

Decide now to enjoy in your mill the benefits of a change-over to Armstrong's Seamless Cork Cots . . . the fabricated roll covering that is always uniform. More than 6,000,000 active spindles running on cork today have proved its economy and greater efficiency. An Armstrong representative can give you production figures for mills running your range of numbers on cork . Ask him for them the next time he calls. Or write today to Armstrong Cork Products Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

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SINCE 1860

ARMSTRONG'S *Extra Cushion* **SEAMLESS CORK COTS**

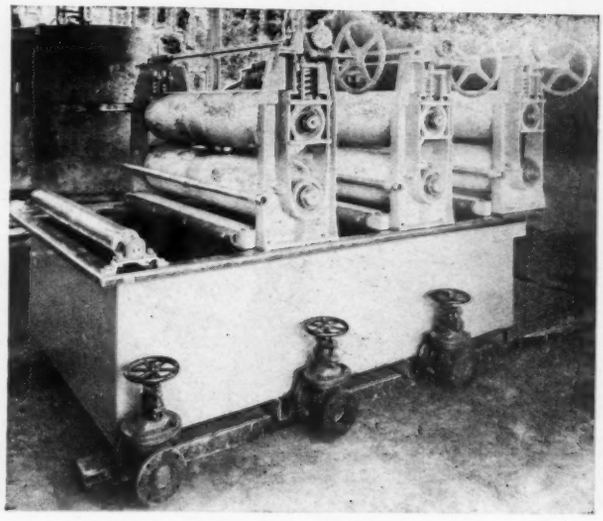
New Printing Materials Announced by Aridye

A streamlined method of textile printing, which uses entirely new printing materials, is announced by the Aridye Corporation, Fair Lawn, N. J., a subsidiary of Interchemical Corporation. According to the company, this development makes it possible to print with more sharpness of detail on a variety of materials. Formulations are being adapted to decorate nearly any type of cloth including cotton, wool, silk, acetates, rayons, metallic weaves, and most types of mixtures. Mill runs on shirtings have already been made by several large printers. According to the manufacturer, Aridye printing provides exceptional clarity of detail and fine tonal gradations. New and unusual color effects may be achieved with the process. Aridye colors differ substantially from those now in general use in the textile field. They have no chemical "affinity" for the textile fibers, but rather, they effect a mechanical anchorage. When printed, the colors show unusual fastness to light and to washing. Some shades, used for shirtings, withstood 300 fadeometer hours without fading. Formulations are varied to get the degree of penetration required. With this penetration control, colors may be printed on one surface, on both sides, or in through and through designs. These through and through patterns promise to produce unusual effects, some of which are not even possible with weaves. As Aridye colors impart a uniform coloration on all fibers, they are well suited to decorating fiber mixtures. It is thought that this characteristic may open the way to an extension of textile printing to woolens, worsteds, and fabrics composed partly of rayon. With Aridye, the printing operation is simplified. Ordinary roller machines are used with standard engravings, but it is possible to employ relatively shallow engravings and so effect savings in color consumption. Good results can be obtained with considerably less pressure in Aridye printing, and machines may thus be speeded to capacity. Goods are dried and then cured by subjecting them momentarily to an elevated temperature. Steaming, ageing, and washing operations are eliminated. Under this simplified procedure, colors may be checked for possible imperfections as soon as the material is printed. Aridye prints in final colors—there is no need to wait to see the effects of steaming, or washing on color. This saves considerable time in taking "patches". Color preparation, too, is simplified. Aridye is shipped in cans, ready for use. Different shades may be obtained by mixing standard colors. Gum cooking, color dissolving, and paste straining are eliminated. Left over colors on a job may be taken from the color box and stored indefinitely. There is almost no evaporation at room temperature, and the material is easily cleaned from the rollers.

◆

New Fleet Line Open Width Washer

Riggs & Lombard, Inc., Lowell, Mass., have designed an open width washer to run in tandem with and at the delivery end of the Fleet Line progressive jig. Like the latter machine it is used for processing heavy cotton fabrics such as collar cloth, gabardines, heavy drills, twills, ducks, etc., which should not be roped up in a kier where they would be permanently creased. It is ordinarily built with three compartments, the first for soaping and the second and third for rinsing. Excess water is squeezed back into the baths by nip rolls and the pressure of these rolls can be regulated or released by the same hand wheel. Squeeze rolls are motor driven through sprockets and chains. A drain valve is located at the front of the machine, and the normal capacity of the machine is about 30 yards per minute. The kettle is furnished in boiler steel or stainless steel as desired.



Open width washer

◆

Air Hose Improved

The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., has perfected an air drill hose constructed with an inner tube of gas-oil-proof synthetic rubber for use on air compressors and in other service where oil is present in the line. It is well constructed with two or three braids of strong long staple cotton cord. Between these are placed sheets of live rubber which vulcanization forces into the cord, forming one inseparable unit.

◆

New P&H Welding Electrode for Stainless Steel Work

The Harnischfeger Corporation, Milwaukee, Wis., manufacturer of the P&H-Hansen welder and Smoothare welding electrodes, announces Smootharc "Harstain," an electrode designed for welding chrome-nickel stainless steel. "Harstain's" base metal contains 19 per cent chromium, 9 per cent nickel—a higher content of both elements than in the usual 18-8 type of stainless steel. This prevents nickel and chromium content of the weld from dropping below the analysis of the parent metal. Carbon content of the base wire is below .08 per cent to insure high resistance to corrosion. Columbium is added to prevent carbide precipitation.

This coating is especially designed to give the arc maximum stability and protects metal against oxidization or atmospheric contamination. It is accomplished without the use of calcium chloride, a highly toxic chemical found in other stainless steel electrodes.

Kem Metal Protective Paints

The Sherwin-Williams Company, Cleveland, O., has made available new products in metal protective paints. The products are S-W Kem-Metal protective paints and include Kem-Kromik metal primer, Kem-Elastic metal protective paints, and Kem red lead (primer). The distinguishing feature in the formulating of these new products is said to be their chemically evolved (synthetic) S-W Kem liquid. According to the company the paints exclude water and gases from the protected metal. Other practical advantages said to be had are faster drying, easy brushing, and the surface does not roughen from weather.

◆

Oil Proof Wipers for Machine Shop Equipment

The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., has developed paranite oil proof synthetic rubber wipers for use on lathes, planers, grinding machines, turret lathes, milling machines, and other shop equipment. Paranite wipers, in addition to being resistant to the effects of oil, acid, or other liquids, will

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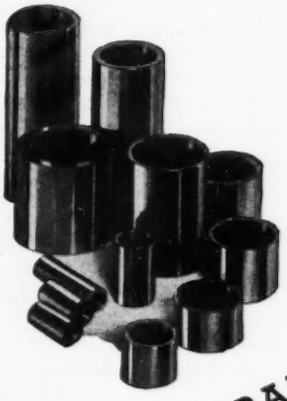

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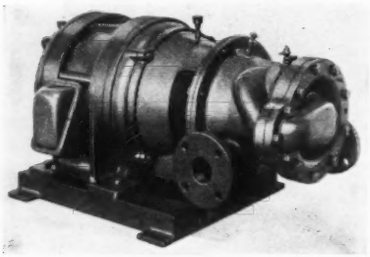
Sleeve BEARING HEADQUARTERS

not absorb grit, metal chips, or abrasive material. They may be molded in sizes to suit the machines on which they are to be used and are installed to insure close tolerances between moving parts. Monarch Machine Tool Company, Sidney, O., with whom Manhattan engineers worked in making this wiper, is installing these wipers as original equipment on its machines.

◆

New Type Centrifugal Pump

Allis-Chalmers Mfg. Company, Centrifugal Pump Division, Milwaukee, Wis., has supplemented its complete line of single stage "SSUnit" type pumps by adding a 2½ x 1½-inch two



Centrifugal pump

stage "SSUnit" type pump good for heads up to 525 feet at 3550 revolutions. This pump has an efficient capacity range of from 50 to 100 g.p.m. against heads of from 300 to 500 feet. It is bolted to the motor frame by a splash-proof connection piece, the impellers being mounted on the special motor shaft extension, and the motor bearings also being the pump bearings like in their usual "SSUnit" construction.

It is available with motors of from 10 to 30 horse-power of the standard squirrel cage type, splash-proof or explosion proof types, and is a very adaptable pump for small boiler feed pumps—humidifier pumps in textile mills—air conditioning service—house pumps—small mine pumps—oil gathering, loading and small pipe line pumps and other small capacity, high pressure services.

The standard pump has cast iron casing and cover, and is bronze fitted. The impellers are placed back to back providing axial balance with the suction impeller next to the motor and the discharge passage from the first stage impeller cast integral with the main casing body and communicating with a passage in the cover leading to the inlet of the second stage impeller. This design permits the cover to be taken off, and the inside parts of the pump to be taken out without disconnecting the suction and discharge piping.

◆◆

New Publications of Textile Interest . .

(These publications may be secured direct from the manufacturer or through COTTON.)

General Electric Company, Schenectady, N. Y., GEA-1437C on gear motors, output-shaft speeds, single-phase, polyphase, or direct-current motors; GEA-1607B on direct-current generators and exciters; GEA-1542C on constant-speed and adjustable speed motors; GEA-2889 on magnetic motor-starting switches; GEA-2052A on new track-type limit switch; and GEA-2571B on reconditioning flooded electric equipment. Please order by number.

Lewis-Shepard Company, 280 Walnut St., Watertown, Mass. Circular No. 323 showing many ways of introducing safety in indoor transportation of materials.

Leeds & Northrup Company, 4902 Stenton Ave., Philadelphia, Pa.—Catalog E-96(1) descriptive of the portable universal pH indicator for laboratory and plant.

Flexrock Company, 800 N. Delaware Ave., Philadelphia, Pa. Bulletin descriptive of Rooflex, product for stopping leaks in the roof.

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill. *Link-Belt Silverlink Roller Chains and Sprockets*, a 174-page book containing practical information, application pictures, engineering data, and many new chain features not published before.

The Skybryte Company, Cleveland, O. A catalog devoted to the better maintenance of metal, concrete, wood, glass, and composition surfaces.

The Patterson Foundry & Machine Company, East Liverpool, O. *Present Day Methods for Dissolving Cellulose Derivatives*, a reprint in folder form from "Chemical & Metallurgical Engineering," October 1937.

The Foxboro Company, Foxboro, Mass. A new 22-page bulletin, No. 223, on instrument boards. Describes standard practice in control board design and illustrates typical layouts.

The Bristol Company, Waterbury, Conn. Bulletin describing complete line of millivoltmeter pyrometers. Contains 12 pages of useful information regarding the construction and operation of pyrometers in all models. Also, a bulletin descriptive of the company's metameter system for telemetering and remote automatic control.

Norma-Hoffmann Bearings Corporation, Stamford, Conn. Bulletin No. 962 descriptive of precision needle roller bearings and needle rollers. Gives specifications and design data.

The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J. Bulletin No. 6868 describing Condor whipcord V-belts. Gives list prices and comparison table.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. A 20-page booklet, *Socket Instruments*, giving illustrations of installations, applications and economies of plug-in instruments.

The Halsey W. Taylor Company, Warren, O. Bulletin descriptive of new electric water coolers. Is well illustrated and shows cut-away view of operating parts of coolers. Contains specifications.

Philadelphia Quartz Company, 121-129 South Third St., Philadelphia, Pa. Folder describing the use of Metso cleaners. Folder on silicates of soda.

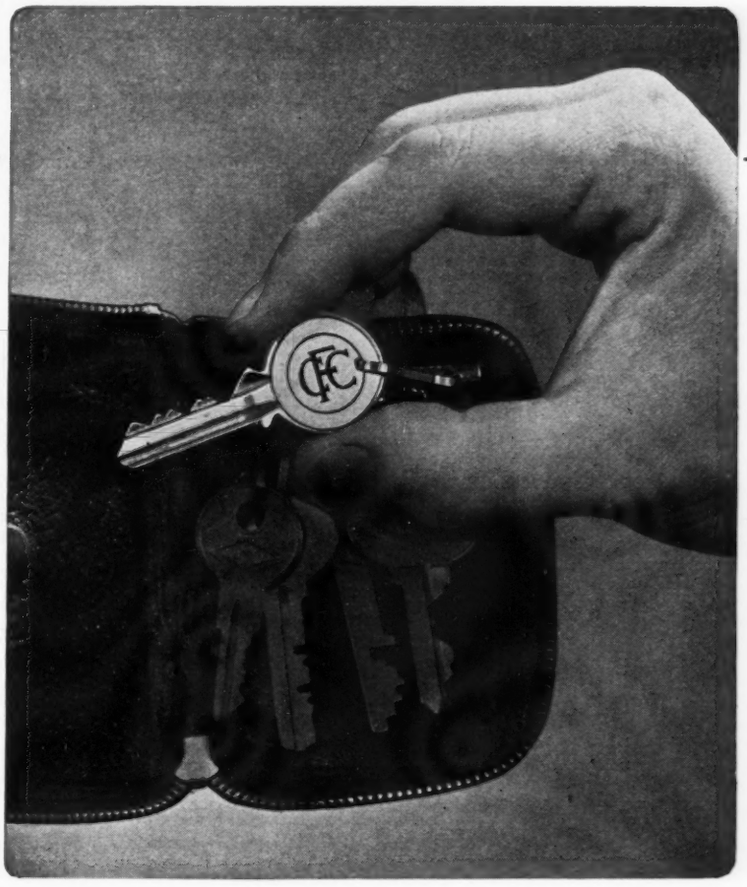
The American Rolling Mill Company, Middletown, O. *Dyestuffs & Stainless are Friendly Enemies*, an attractive booklet describing the use of Armco stainless steels in textile equipment.

General Electric Company, Schenectady, N. Y. GEA-19H, on ac magnetic motor-starting switch; GEA-743B on reversing drum switches; GEA-2234B on manual motor-starting switch; GEA-2292A, d-c magnetic crane control for hoist, bridge, trolley, and auxiliary motions; GEA-2679A on photoelectric relay for automatic light control; GEA-2907 on alnico limit switch; and GEA-2908, oilproof push button and selector switch. Please order by number.

S. Blickman, Inc., Weehawken, N. J. Folder on stainless steel equipment, the fourth in a series, this one concerning rectangular dye tanks, steam jacketed kettles, cylindrical tanks with conical bottoms.

Textile Specialty Company, Inc., Greensboro, N. C. Folder presenting a new member of the *Truweave* family, the rugged ribbed pitch band reed.

Chemical Publishing Company of New York, Inc., 140 LaFayette St., New York City. 150-page spiral bound Catalog No. 6 listing and describing technical books on chemical, bacteriological, pharmaceutical, medical, engineering, electrical, textile, and general scientific subjects. Send 10 cents in stamps or coin.



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TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Carolina Yarn Association Will Hold Golf Tournament at Pinehurst in October

The annual spring business meeting of the Carolina Yarn Association was held May 16 at the Greensboro (N. C.) Country Club with 31 member firms being represented. It was decided to have the fall tournament again at Pinehurst, N. C., during the third week in October. The actual dates will be announced later. Officers elected for the ensuing year are S. L. Diggle, Dixie Mercerizing Company, Charlotte, N. C., president; W. T. Cheatam, E. C. Holt & Company, Burlington, N. C., vice-president; Jack Holbrook, American Yarn and Processing Company, Mt. Holly, N. C., treasurer; and John R. Sherrill, American Bemberg Corporation, Greensboro, N. C., secretary. Prior to the regular business session, an 18-hole golf tournament was held with Jack Holbrook taking the honors with 1st low net and Sam Diggle winning 1st low gross.

◆

Foxboro Moves Dallas Office

The Foxboro Company, makers of industrial precision instruments and controllers, have announced the change of address of their Dallas office and branch factory. The new office is now located at 1710 North Akard Street, Dallas, Texas. The entire building will be occupied by The Foxboro Company, in order to enable them to maintain a larger stock of instruments, charts and replacement parts. Larger quarters have been necessitated by increased business in the Southwest.

◆

Changes in Organization of Pomona Pump Company

Several changes have been announced in the executive personnel of the Pomona Pump Company, Pomona, Cal., according to George A. McKenna, president and general manager of the company since 1925. D. C. McKenna has become vice-president and secretary-treasurer; Jule H. Coffey has been appointed vice-president in charge of sales. Claude C. Cook, formerly in charge of the St. Louis plant, has been made vice-president in charge of manufacturing, with headquarters at Pomona. Charles L. Barrett has been named general sales manager; R. D. Schott, chief engineer; Barclay Mackinnon, comptroller; I. A. Oliver continues in the capacity of consulting engineer. The Pomona plant has been greatly enlarged and now covers three city blocks. A new test laboratory provides means for experimentation in building the line of turbine pumps.

◆

Adams Manager of New GE Standards Department

Lee F. Adams, formerly associated with General Electric's commercial general department, has been made manager of the company's newly formed standards department. Mr. Adams will also act as assistant to Vice-President E. O. Shreve. In his new capacity he will have the responsibility of co-ordinating all activities pertaining to the development and application of standards throughout the company's organization. His department will also work with various local, national, and international associations and agencies interested in standards.

◆

Educational Chart

American Bemberg Corporation has made available a new educational display showing representative Bemberg rayon fabrics and a large chart illustrating the process. The chart can be folded or may be used flat. The top section has swatches of a wide range of fabrics.

◆

Anner Southern Representative for Thomas & Skinner

Henry Anner, Greenville, S. C., has been named as southern representative for Thomas & Skinner Steel Products Company, Indianapolis, Ind., manufacturers of a complete line of sinkers, dividers, knock-over bits, etc. The company also makes a specialty of reconditioning and re-surfacing the wearing surface of various machine parts, such as cams, ratchet wheels, etc.

◆

Houghton Announces Certified Belting

E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, manufacturer of oils and leathers for the industries, has announced *Certified Belting* and *Certified Belting Performance*. The certification, which is in the form of a gold seal attached to each VIM tred belt, states that the belt is made from the highest quality imported hides, and tanned by the exclusive VIM mineral process—and certifies that the belt "will cost less per unit produced than any other belt under identical conditions." Along with the certification, Houghton is offering a new type of belt record card designed to assist manufacturers keep an accurate cost analysis of each belt over a given period of time. They offer these cards free if requested.

◆

New Finishing Method for Spun Rayon Suitings

According to reports, a new Sanforizing process is being used on spun rayon suitings this season, which is said to give the material not only a clothy hand feel, but which is ending the possibility of the fabric shrinking or stretching. It is understood that the process employs the Sanforizing system in conjunction with a synthetic resin treatment. It is said that the process has also been used with success on fabrics containing small quantities of wool.

◆

Book Catalog Available

The 150-page spiral-bound Catalog No. 5 listing and describing chemical, bacteriological, pharmaceutical, medical, engineering, electrical and general scientific and other technical books of all American and British publishers, offered to technical workers by the Chemical Publishing Co. of N. Y., Inc., met with such a great demand that it is now out of print. Catalog No. 6 is now ready and will be mailed to any chemist, engineer, scientist or professor sending 10 cents in stamps or coin to cover mailing. This catalog eliminates the necessity of filing and looking through catalogs of many technical publishers.

◆

"Stay Slick" Lubricant

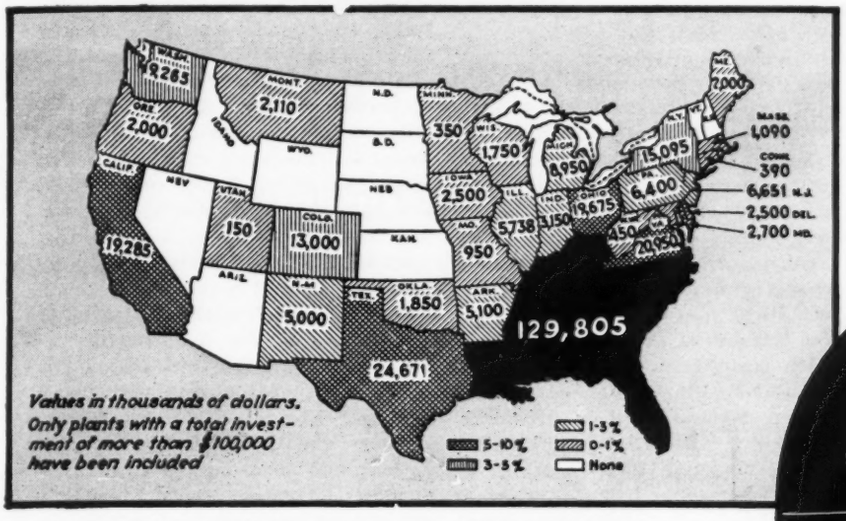
H. C. Harding, Inc., Second and Tilghman Streets, Philadelphia, Pa., has distributed literature descriptive of *Stay Slick* lubricant, which is said not to spatter or splash, and which does not increase power consumption or bearing temperatures. According to the company it proves to be labor saving and reduces fire hazards. In the knitting industry the oil is said to adhere to the needles, polish them and prevent their rusting and pitting.

◆

Soy Bean Protein for Fiber

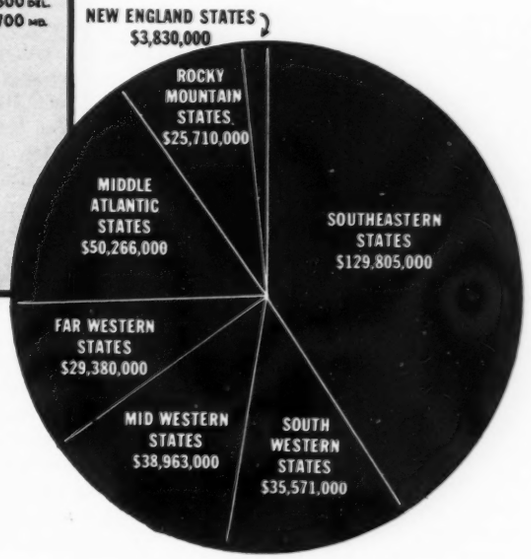
The production of a synthetic textile fiber from soy bean protein is nearer, it is indicated in a statement made by R. A. Boyer, research department, Ford Motor Company. According to Mr. Boyer, Ford chemists after 19 months of effort have succeeded in producing a fiber from the protein of soy beans. He suggested that automobiles may soon be upholstered with textiles made from these fibers.

Industry goes SOUTHEAST



Source of information courtesy Business Week

Chemical and Metallurgical Engineering reports that a grand total of $350,000,000 was invested in expansion and modernization in the process industries in 1936-1937. As shown here, the lion's share of this building program has gone to the Southeast.



PLANT location today is arrived at on a strictly engineering basis. All factors entering into production and distribution costs are carefully analyzed.

As industry investigates and proves to its own satisfaction the many outstanding advantages offered by the Southeast, more and more plants are built here. The process industries are only one example of the great industrial trek to the Southeast.

TO AID AND PROTECT INDUSTRIAL DEVELOPMENT IN THE SOUTHEAST

FLORIDA • NORTH CAROLINA • GEORGIA • MISSISSIPPI • ALABAMA
KENTUCKY • SOUTH CAROLINA • TENNESSEE • LOUISIANA
Atlantic Ocean
Gulf of Mexico

Meeting of Southeastern Governors' Conference at the White House, after luncheon with the President

WE, THE GOVERNORS . . .

WITH a view to aiding industrial expansion of our section and the stabilization of employment we, the Governors of the Southeastern States, set forth the following objectives: (1) Equitable freight-rates as affect the Southeast (2) Uniform taxation policies (3) Friendly labor attitude between employer and employee (4) Cooperation with Federal Government on proper major policies affecting industrial development. It will be our aim by working together on these objectives to maintain conditions favorable to sound industrial development so that the Southeast will reap the full benefits of the ever-increasing trend toward Industrial Decentralization, and gain a proper balance between agriculture and industry.

SOUTHEASTERN GOVERNORS' CONFERENCE

LAWRENCE WOOD ROBERT, JR., *Executive Director, Bona Allen Bldg., Atlanta, Ga.*

Outstanding advantages the Southeastern States offer to manufacturers are:

Unlimited supply of raw materials.

Ample power at low rates.

Excellent transportation facilities to growing markets.

Native-born labor—efficient and reasonable.

And especially, above all others,

Unexcelled year 'round moderate climate which makes possible:

Lower living costs for better standards of living.

Lower production costs.

Lower construction costs.

Lower capital investment.

Patent for Treating Cotton for Siever

A patent of interest was recently granted to Hughes L. Siever of Charlotte, according to Paul B. Eaton, patent attorney, Charlotte, N. C. This patent is unique and relates to the placing of a treating solution in textile fibers while they are in mass form, as distinguished from thread or yarn formed by passing the fibers in mass formation past an applicator, so as to impregnate the fibers with a solution which causes the fibers to be stronger and more heat resistant than untreated fibers. When applied to a carding machine, the applicator delivers a fluid to the sliver as it is being condensed, and then during subsequent drafting operations the treating solution thoroughly impregnates the entire mass, resulting in more perfect paralleling of the fibers, reducing static electricity during the drafting processes and greatly increasing the strength of the yarn. The treating solution usually has lubricating properties and this causes a reduction in the internal friction between the fibers of the yarn, thus providing a smooth yarn with less protruding fibers, it is said. Various fluids can be used with the process. The nature of the treating solution, however, depends on the requirements of the manufacturer and the ultimate purpose of the finished yarns. The application is broad in scope as, for instance, certain kinds of dyeings are possible with either water or oil soluble dyes. Wetting agents can be applied at this point to increase the hygroscopicity of the fibers.

Another application predicted for the process is of interest to tire cord manufacturers. A conditioning agent is added for the purpose of increasing the tensile strength and adding heat resistant properties to the cord. This is brought about by increased tensile strength when bone dry and by the fact of heat resistant substances originally applied in the slivers prior to drafting and spinning into yarn.

◆

New Colors Added to Line

National Aniline & Chemical Company, Inc., 40 Rector St., New York City, have added three new colors to the company's line. The colors are announced as usual on the regular form cards carrying samples, method of application instructions, and other pertinent data. These colors are National Niagara Brilliant Blue BFL, a direct dye of particular interest to the rayon dyer because of its suitability for barre rayon (also applicable to cotton, rayon, or pure silk); National Alizarol Flavine A Conc., a chrome dye, readily soluble and may be applied to wool by any of the three standard methods; National Erie Catechine DC, particularly for use in dyeing cotton-rayon hosiery containing acetate silk effect threads.

◆

New Textile Texts by Textile Foundation

The Textile Foundation has announced the publication of the following books on the textile industries of the United States: *Management of a Textile Business*, Balderston and Karabasz; *Textile Costing—An Aid to Management*, Lockwood and Maxwell; *Marketing of Textiles*, Cox; and *The Textile Industries—An Economic Analysis*, Michl.

The books were written primarily to provide business background for students in the textile schools and colleges and to supplement their technical training with materials that will help them to a better understanding of business methods and of the business problems that will confront them when they enter the textile industries. The scope of the books is so wide and the treatment is of such a nature that members of the trade will find them useful, informative and interesting. They should prove especially valuable to employees engaged in minor executive and supervisory work who would like to obtain a clearer understanding of the economic forces and trends that affect the textile industries and a better perspective of the organization, management practices and marketing methods of the several branches of the textile and allied industries. They should also serve to provide excellent teaching materials for training courses for foremen and minor executives.

Management of a Textile Business focuses attention upon management policies and techniques that must be considered in the running of a mill. It is concerned with the lay-out of the mill and its equipment; the control of labor and labor costs; the procurement and storage of materials and supplies; controlling the flow of orders through the mill; price setting; and the control of the business as a whole through organization, supervision and budgeting. The illustrative material is drawn from actual situations that clarify the discussion and bring out significant comparisons between the various textile industries.

Textile Costing—An Aid to Management stresses the importance of cost data and their use to management in the running of a mill. It is not intended for textile accountants but rather to indicate to executives the principles of costing and the ways in which a knowledge of costs can help management in making its control of mill operations more effective. The burdensome detail of journal entries, cost forms and accounting department records, characteristic of most texts on accounting, has been reduced to a minimum and has not been permitted to overshadow the basic principles of material, labor and overhead costs and their implications to management.

The Marketing of Textiles describes the methods used by the textile industries to move its products into consumption. Beginning with a discussion of the marketing of raw cotton, wool, silk and rayon, it traces the methods and agencies employed in marketing yarn and cloth from process to process into the hands of industrial and institutional buyers, cutters and ultimate consumers. It also discusses the influence of styles and fashions and the methods employed to cope with them; the price policies and problems of the industry and their influence on marketing; and concludes with a discussion of devices for sales promotion, the problem and control of unfair competition, and proposed ways of reducing the costs of marketing.

The Textile Industries—An Economic Analysis focuses attention not on the individual mill but on the industry as a whole. It shows how the policies of the individual mill are influenced by those of its competitors and how the industry as a whole is affected by economic forces such as fluctuating raw material prices, excess capacity, rise of new producing areas, international competition, changes in rates of growth, etc. Each branch of the industry is given separate treatment and its particular economic problems are analyzed. The book ends with a discussion of proposed methods of stabilizing the textile industries through individual action and by trade association and governmental activities.

The books were prepared by members of the staff of the Wharton School of Finance and Commerce of the University of Pennsylvania and, as the above description indicates, present a connected and integrated analysis of the textile industries from the mills to the consuming markets.

The books can be ordered through the Textile Foundation, Commerce Building, Washington, D. C., and may be purchased singly or by complete sets, at the rate of $2.00 per single volume and $6.00 for the set.

◆

Wittrup Manager Manhattan's Chicago Mechanical Branch

J. B. Wittrup, who has been connected with The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., for 23 years, has been appointed manager of the Chicago Mechanical Rubber branch.

Greater Production From Twister Frames

Because NON-FLUID OIL does not fly off rings to get on yarn and rails, it prevents blackened yarn. By staying on rings it lubricates dependably and prevents broken ends.

7 out of 10 mills have proven in day-to-day operation that NON-FLUID OIL not only makes these savings—but also reduces lubricant and application cost by outlasting other ring lubricants 3 to 5 times.

Write today for free testing sample and bulletin, "Lubrication of Textile Machinery"

New York & New Jersey Lubricant Co.

Main Office: 292 Madison Ave., New York, N. Y.

Falls L. Thomason, Charlotte, N. C.
Southern Agent

WAREHOUSES:

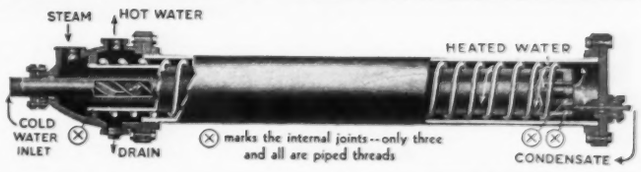
Charlotte, N. C.		St. Louis, Mo.
Greenville, S. C.	Providence, R. I	Chicago, Ill.
Atlanta, Ga.		Detroit, Mich.

TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

YOUR *kind of heater*



Capacities up to 12,000 gallons per hour; steam pressures up to 250 lbs.

--A steam water heater that you can

CONNECT DIRECTLY TO YOUR HIGH PRESSURE LINES

THE ability to operate directly on high pressure lines is one of the many reasons for the growing popularity in the textile industry of

The Johnson *Instant* Heater

Notice, in the sectional illustration above, how long water travel in contact with steam heated surfaces is accomplished without the use of the light weight tubes or coils that call for reducing valves and separate low pressure lines in other types of steam operated heaters.

The outer shell is heavy wrought pipe and the two concentric inner pipes which form the steam chamber are copper tubes of full wrought iron pipe thickness. There are only three internal joints (marked [x] in the illustration) and all three are pipe threads.

With capacities up to 12,000 gallons per hour and ability to withstand pressures up to 250 lbs. the Johnson Instant Heater will take care of a wide range of requirements.

Write for bulletin covering applications and capacities.

THE JOHNSON CORPORATION
815 WOOD STREET THREE RIVERS, MICH.

Also manufacturers of Johnson Rotary Pressure Joints for dry cans, slashers, Sanforizers, etc.

PERSONAL NOTES
about Men You Know

R. A. BUTLER, for the past two years director of engineering of the manufacturing division of Marshall Field & Co., with headquarters at Spray, N. C., has resigned and has accepted a position, effective June 1, with the Spray Cotton Mills, Spray, N. C., of which KARL BISHOPRIC is president. Previous to his connection with Marshall Field, Mr. Butler was technical superintendent of Martha Mills, The B. F. Goodrich Co., Thomaston, Ga.

ROSSER J. SMITH, who several months ago became executive vice-president of Southeastern Cottons, Inc., 58 Worth St., New York City, was elected president of the company at a meeting of the directors at Sea Island, Ga., last month. F. ELROY CURTIS, who has been president, was made chairman of the board, the position held by the late HOWARD E. COFFIN. Prior to his connection with Southeastern, Mr. Smith was associated with the Bank of Manhattan, New York City.

W. F. CHRISTMAN has been made assistant superintendent of the towel mill of Marshall Field & Company, at Fieldale, Va. Mr. Christman has previously been in charge of knitting plants of the company at Roanoke, Va., and Pawtucket, R. I. He earlier was connected with the Russell Manufacturing Company, Alexander City, Ala.

E. S. TILLINGHAST has resigned as superintendent of the bleachery at Russell Manufacturing Company, Alexander City, Ala., to become assistant superintendent of the Union Bleachery, Greenville, S. C., where H. R. MATHEWSON recently succeeded C. H. PATRICK as superintendent.

JOE CRATON, formerly overseer of carding at the Oxford (Ala.) plant of Southern Mills Corporation, has been made superintendent of the company's mill at Munford, Ala. He is succeeded at Oxford by H. E. CRATON.

H. C. ESTES, formerly assistant superintendent of Jefferson Mills, plant No. 3, Royston, Ga., has become overseer of weaving, Beaumont Manufacturing Company, Spartanburg, S. C.

G. H. HUGHES, superintendent, Borden Mills, Inc., Kingsport, Tenn., has announced several promotions in his operating staff. J. FRANK SENTELL has been promoted from superintendent of carding to assistant to the superintendent. He is succeeded by L. D. PUTNAM, formerly overseer of carding. J. E. PEPPERS, formerly second hand of carding, is now overseer of carding, being succeeded by J. C. BARTON.

W. J. CARTER, president, Carter Fabrics Corporation, Greensboro, N. C., and vice-president of S. Slater & Sons, Inc., Slater, S. C., is now also manager of the Cleveland Cloth Mills, Shelby, North Carolina.

T. B. PUCKETT has been made president of Conestee (S. C.) Mill, succeeding the late THOMAS I. CHARLES. MRS. LOIS P. CHARLES has been elected vice-president and treasurer, and J. S. SQUIRES is secretary and assistant treasurer.

D. E. BATESOLE, formerly assistant chief engineer of Norma-Hoffmann Bearings Corporation, Stamford, Conn., has been promoted to chief engineer, succeeding the late GEORGE R. BOTT.

HARRY J. FENTON has been made manager of the Murray (Ky.) Hosiery Mills, succeeding WILLIAM EGOFF.

T. G. GRAY, who has been with the Chadwick-Hoskins Mills, Charlotte, N. C., has been made superintendent of the Gossett Mills, Williamston, S. C., succeeding J. MANNING BOLT, who was transferred as superintendent from that mill to the company's plant at Calhoun Falls, S. C.

F. B. MCDONALD, formerly with the Bibb Manufacturing Company, Columbus, Ga., has become superintendent of the Sanders Cotton Mills, Winona, Miss.

FRANK R. LOVE, who has been located at the Elizabethton, Tenn., plant of North American Rayon Corporation, has been transferred to the southern district sales office of the company at Greensboro, N. C., in a sales capacity.

C. W. GEIER, Hazelton, Pa., has become superintendent of the Pinehurst Silk Mills, Hemp, N. C., succeeding W. R. ROSENDALE.

E. C. GWALTNEY, in charge of research and development work for the Bibb Manufacturing Company, with plants in Georgia, has been made consulting engineer for the Saco-Lowell Shops, Biddeford, Me. Mr. Gwaltney will continue to be consulting engineer for The Bibb also.

E. J. PATTERSON has been added to the southern staff of George B. Pfingst, Inc., Philadelphia, Pa., tram silk supplier to the hosiery mills, and will cover Virginia, West Virginia, and North Carolina in a sales capacity.

NAT M. BLACK has been elected vice-president of the Preston Piece Dye Works, Garnersville, N. Y.

Obituary

DONALD M. GILES, president of the Giles Dyeing Machine Company, passed away at Graduate Hospital, Philadelphia, Pa., April 27. Finishing at Massachusetts Institute of Technology in 1913, he had been head of the Giles Dyeing Machine Company since 1931.

SILAS A. TUCKER, manager of the Chicago mechanical rubber goods branch of The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., passed away April 14 in the Presbyterian Hospital, Evanston, Ill. He was 51 years old and had been with the company 25 years.

FRANK P. CARPENTER, for many years an official of the Amoskeag Manufacturing Company and the Amoskeag Holding Company, Manchester, N. H., passed away during April at the age of 92.

THOMAS F. JEFFRESS, Richmond, Va., president of the King Cotton Mills, Burlington, N. C., passed away recently at the age of 78.

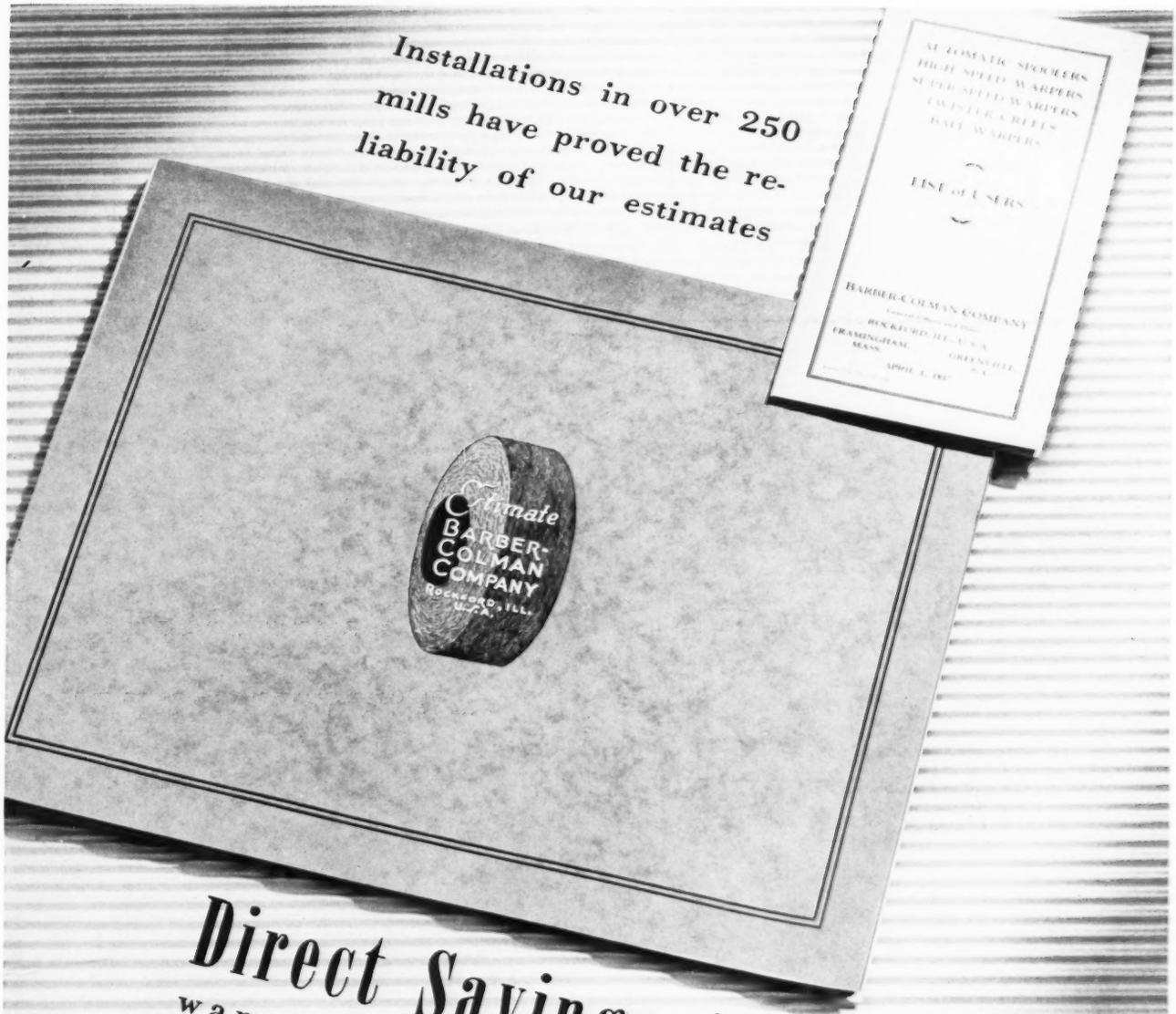
JEHIEL WEINTRAUB, president, Quaboag Textile Mills, West Warren, Mass., succumbed recently to injuries received in an automobile accident. He was 56 years of age.

L. F. WILLIAMS, 56, overseer of weaving at the Hart Cotton Mill, Tarboro, N. C., passed away recently as the result of a heart attack.

JAMES M. FOWLER, 79, vice-president, E. M. Holt Plaid Mills, passed away recently after an extended illness.

M. VANCE FULP, 57, for many years president of the Vance Knitting Mills, Kernersville, N. C., passed away recently.

CHARLES P. CLARKE, founder and president of the Fort Schuyler Knitting Company, passed away the first part of April at the age of 76.



Direct Savings Alone

warrant the replacement of your present machinery with Barber-Colman Spoolers and Warpers

Indirect Savings

are additional and important

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U. S. A.

FRAMINGHAM, MASS., U. S. A. ● GREENVILLE, S. C., U. S. A. ● MUNICH, GERMANY ● MANCHESTER, ENG.

your customer can't see but he can know

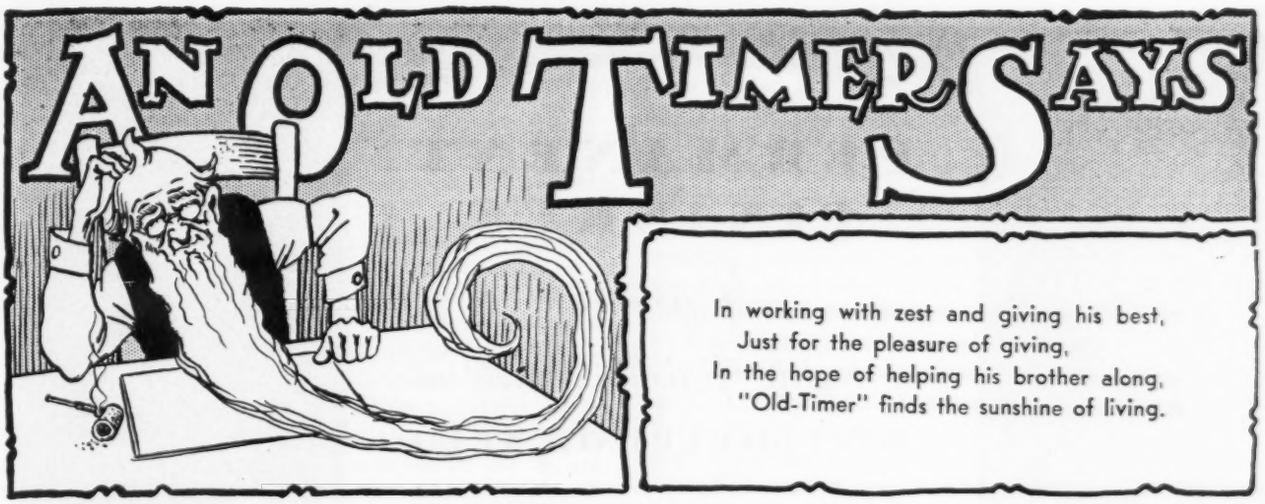
When you can say "wound on SONOCO Velvet Surface Cones", yarn buyers *know* that your product will deliver a *full measure of value*—with no wasteful press-offs—no breaks—no delays—no *added* production costs . . . . . The price for this invaluable customer confidence is very small.

SONOCO Makes Everything in Textile Paper Carriers.

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"What Is Your Boy Going to Do?" (Part 1)

(Since this article is written in conversational style, it should be borne in mind that these paragraphs in regular type represent OLD-TIMER'S part of the conversation; and that those paragraphs in italics represent JIM'S part.)

What's your boy going to do, JIM?

Why do you ask such a question, OLD-TIMER? *Don't you know that the logical and sensible thing for any mill man to do is to prepare his son for the textile business, because in this line, he can give his son the benefit of his years of practical experience?*

Yes, JIM, I know, but—

But what, OLD-TIMER? *Don't you get started comparing the hard time you and I had when we started in the mill business with the possibilities a young man has in the mill today. I can well remember your telling me how long it took you to get a loom fixer to even let you see him build a set of 5-leaf twill cams, but today they, or at least most overseers and superintendents, will tell a young man anything he wants to know about a mill.*

Sure, JIM, and we both had been setting cards for several years before either of us knew what was really going on inside of a card. We were setting up cards like we were told to set them, just like a parrot learns to talk by hearing the same words repeated to him over and over again. Then we had the good fortune to get to work with Mr. Vaughn, the author of Vaughn's Practical Carder, and he explained the working of a card to us in such a way that it seemed as though we could see right into a card the same as if it had been made of glass. Even the old stationary top flat cards that I had charge of at the time over in the old mill (Mr. Vaughn was in the new mill, which had revolving top flats) turned out better work as I began to understand what effect the different settings on a card had on the fibers.

Remember, JIM, what a time we would have with those old stationary top flat cards on Monday mornings after we had had a rain on Sunday?

Yeah, OLD-TIMER, *and didn't Mr. Vaughn help you out there, too, by suggesting that on a damp Monday morning if you would just lift up the stationary flats and let them rest on the steel pegs, out of close contact with the cylinders, then start up the cylinders and run them an hour or two with the feed cut out, you could get the cards to working sooner than by having to back off all the stationary top flats and having to reset the flats?*

Sure did, JIM.

And how about those first dobbies you tried to start up, OLD-TIMER?

Oh, I went to town on that job, JIM. You know there were not so many kinds of cloth patterns in those days, and a man who could develop a new pattern rated pretty high with the boss. Well, I was trying to copy some patterns out of one of E. A. Posselt's design books, and I got two of them mixed up. What happened was this: Both patterns were 8-harness weaves, and when they brought them to the weave room to tie on the looms I put the pegging plan that should have gone with No. 1 pattern on the No. 2 pattern. When the fixer started the loom up he worked on the darn thing about half a day and then came after me, saying there must be something wrong with it because he could not get it to look like a piece of cloth, and, in fact, it didn't, but it soon dawned on me that I had gotten the pegging plans mixed up, so I went to look for the other warp, that also had the wrong pegging plan on it. Oh boy! you can imagine my surprise when I found it running like a top and making a beautiful piece of cloth that looked something like the birds-eye diaper cloth which became so popular a few years later. I very proudly took a sample of *my* new pattern out to the office and basked in the sunlight of praise from all who looked at the new pattern.

Now that gave me an idea, and I bought all the design books that I could find. I would look for two patterns of the same number of harnesses and then cross the weave, or pegging plans, on them and put the warps on the looms. If the result looked anything like a piece of cloth I'd send samples out to the office. I also used this same procedure on all patterns, of the

PERMANENT FINISHES

If you have a textile finishing problem

DON'T GIVE UP UNTIL WE DO

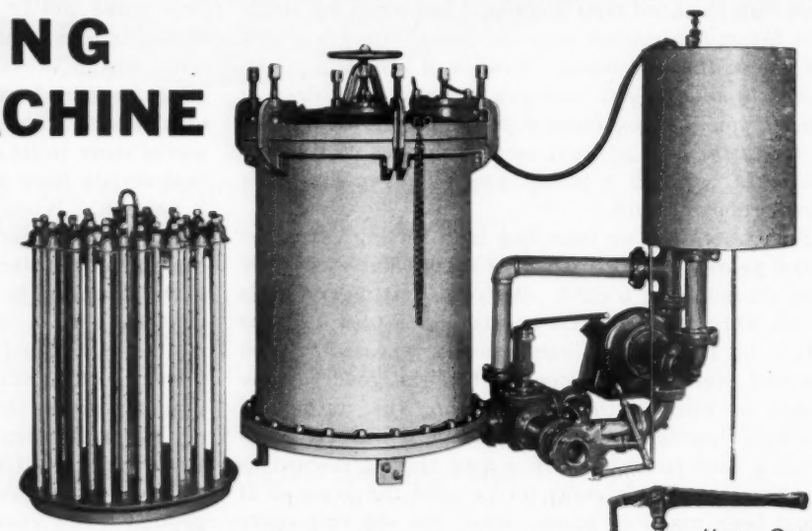
ONE or more of our synthetic resins or cellulose finishes may give the result you wish. If not, we shall gladly try to develop a chemical that will.

So, whatever your finishing problem may be, don't give up until we do.

RÖHM & HAAS COMPANY, INC.

222 W. Washington Sq. Philadelphia, Pa.

MORTON VERTICAL PACKAGE AND ROVING DYEING MACHINE



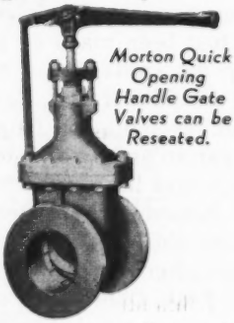
Made of Special Nickel Composition to resist Corrosion and Rust.

•

ALSO MADE FROM STAINLESS STEEL.

•

• Carrier automatically centers itself in packing joint. • Lid is counter-balanced, saving time and effort in operation. • Sample opening in lid. • Hand wheel for tightening Carrier on packing joints. • This machine especially adapted for small dyeing plants. • Built in capacities to dye from 1 to 1000 pounds. • Machine furnished belt, tex rope or direct drive.



Morton Quick Opening Handle Gate Valves can be Reseated.

Manufactured by

MORTON MACHINE WORKS

30 years Experience in Building Raw Stock, Beam, and Package Dyeing Machines in

COLUMBUS, GEORGIA

Morton Automatic Ball Bearing Picker Calender Racks. Morton Quick Opening Handle Gate Valves.

Carolina Specialty Co., Charlotte, N. C.: *Agents for our products in the Carolinas.*

S. B. Schwartz, New Orleans, La.: *Agents for our products in Central America, South America, Mexico.*

same number of harnesses, that the selling agents would send us for reproduction, and we did develop quite a few very nice patterns in this way, some of which you can see in the stores today.

(At another time we will go more into detail about the creation of new patterns originating here in the South; some of the circumstances are quite comical, and, incidentally, some of them are matters of history in the textile business. However, we must get back to our conversation with JIM about what the overseer or superintendent is going to do in fitting his son for his life's work.)

Yes, JIM, I thoroughly agree with you that the logical thing to do is to get that boy in line to become an overseer in a mill, and I strongly advise his having as much practical experience in the mill as you can possibly give him before he goes away to textile school. While he is in high school, insist that his vacations be spent in the mill, operating machines in the department that he likes best.

Wait a minute, OLD-TIMER, *do I understand you to say that a boy should stay in one department all the time?*

No, JIM; before he goes to textile school you should let him work in each department just long enough to be able to understand the machines in that department, that is, what the machines are and what they are supposed to do, but it is not necessary that he spend as much time as it would take to become a good operator; it would take too long to have him learn to operate as many machines as the average operator does, but let him stay in a department only long enough to understand the working of the machines, the names of the different parts of the machines, the processes, etc.

Now when he graduates from textile school ask him which department of the mill he likes best; if he says weaving, then put him in the weave room and let him *stay* there until he becomes an overseer or you find out that he will not develop into an overseer.

You remember, JIM, when the first textile graduates began to come to the mills? In the first place, very few overseers and superintendents wanted them, and when a textile graduate did get a job in the mill his idea was that he must start in the picker room and work through all the departments of the mill. This idea was instilled into the textile graduate, I suppose, because he started in textile school that way, but it surely is not the way to work him into the mill after he has finished his course. Here is my reasoning, JIM:

If a textile graduate starts in the picker room and works long enough to really know something about pickers, it will take him probably six months to a year; then, if he spends the time on cards which is necessary to know much about them there is another year gone. So you see, JIM, by the time he gets through with the drawing and fly frames and onto the spinning, spooling and warping, then slashing and weaving, he has used up three or four years, and what has he got? Just enough experience in each department to really start to get some practical experience. I do not believe he has had enough practical experience in any *one* department to be an overseer of carding, spinning or weaving.

If this student had spent four years in any *one* department I believe he would be better qualified to be an overseer in that department. This is the plan I have used with practically all the textile graduates I have started in the mill: Put him in one department and let him concentrate on that, then, if he hasn't shown his ability in three or four years' time, well, I don't expect he is going to make a very outstanding mill man.

Sometimes it was difficult to get the young textile graduate to see that this was the best procedure, and one of the most practical arguments to use to get him convinced, was something like this:

How many superintendents can you name who have ever been overseers in more than one department? Practically all of the superintendents, at least in the South, were promoted from overseers; they were overseers of either weaving, spinning or carding. I remember only a few who were promoted to superintendent from overseer of cloth room, and a few who were promoted to superintendent from master mechanic. The great majority were overseers of either carding, spinning or weaving.

I would say to a young man starting in the mill business, "It seems to me you would want to follow a course that would most likely land you into a superintendent's position; therefore, suppose you think the matter over a few days before you decide definitely that you want to start in at the picker room and spend several months in each department. Of course you have had technical training in all the departments at college, therefore, if you show your ability as an overseer of carding, spinning or weaving and thereby get promoted to superintendent, you will then be in a position to handle a mill in that capacity much better than did we old-time superintendents who did not have sufficient knowledge of the departments in which we had not worked before being fortunate enough to become superintendents."

Such reasoning usually convinced the textile graduate that this was the most sensible procedure, and he made his selection of the department which he liked best and was on his way. Also, I think that the textile graduate was encouraged and pleased to be allowed to concentrate all of his energies on one department because he soon realized that he was making progress.

One other plan we used in the days before NRA seemed to encourage young men very much. That plan was about as follows:

Very few of the textile graduates had enough money to pay board until they began to earn money from the mill, some of them having had to borrow money to pay for their education. Therefore, we decided to take a gamble at paying them enough to defray necessary expenses as soon as they reported for work. We would explain fully to them that they would not be worth anything to the company until they had had several months' experience, but that we were going to enter into a gentleman's agreement with them, namely, to pay each textile graduate $40.00 a month or $10.00 a week beginning the day they started to work, we to keep a record of the amount paid them until they began to actually earn more than

(Continued on page 103.)

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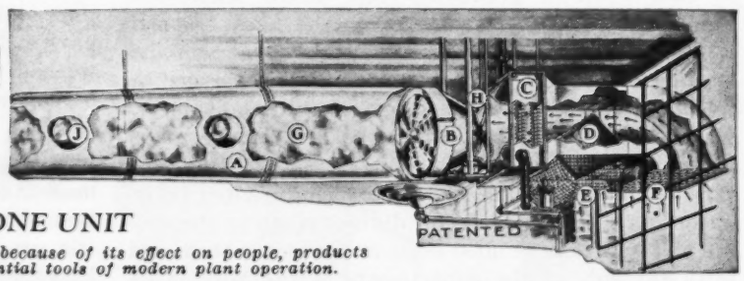

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HOW OTHER MEN MANAGE

High Band Breakage

EDITOR COTTON:

This is in answer to the question on page 129 of the May issue of COTTON submitted by "CONTRIBUTOR NO. 6820", who is having excessive band breakage. He is tying on from two to three thousand bands per day on two shifts on 26,000 spindles.

If this man is tying from two to three thousand bands per day on 26,000 spindles, running two shifts, this is extremely excessive.

In checking my own records I find that they show the following number of bands changed in three mills in which I have operated spinning rooms with band driven frames:

Mill A—15,904 spindles. The bander tied on 156 bands in 8¾ hours; Mill B—28,000 spindles. The bander tied on 150 bands in 13¾ hours; Mill C—39,488 spindles. The bander tied on 33.63 bands per 1,000 spindles in 40 hours.

Construction of spinning bands and used by mills: Mill A—Spinning average yarn number 23s/1 warp, 2.80-hank roving, 6.2 turns per inch, 3.70 twist multiple, 10-ply and averaged 67 bands to the pound; Mill B—Spinning average yarn number 40s/1 warp and filling, stock 1 3/16-inch, 3-hank roving, 7.5 turns per inch, 12 strands twisted band ⅛-inch in diameter for whorls ¾-inch and ⅞-inch; Mill C—Spinning average number 20s filling, staple 1 3/16-inch, 100 per cent Strict Low Middling cotton, 60-grain drawing sliver, .60-hank slubber roving, 1.50-hank intermediate roving, 3.75-hank fly frame roving, 6 turns twist per inch in 3.75-hank. Ten strands twisted on small creel twister 1.2 turns per inch of twist put on spool left-hand twist, twisted into bands on automatic banding machine, right-hand twist, 3.75 turns per inch.

I have seen a bad condition caused by changing spindle oil; the mill, however, did not experience this band trouble until the management changed over to a cheaper spindle oil, and they could not overcome this difficulty until they went back to the spindle oil they ran before the change. If the oil is too heavy it will cause trouble.

I note that a lot of bands come off the spindle whorl, and will say that the spindle whorl should be in center with the cylinder, and if the spindle box rail were lowered to increase the length of traverse it would be necessary to lower the cylinder in the same proportion for best results.

If the spindle whorls are worn and have sharp edges this will cause band breakage. I would suggest that enough bands be on hand hanging in the room so that they may become adjusted to the humidity of the room in which they are to be used.

If braided bands are used they should be stretched before they are put on the frame. It would be of assistance to the writer in determining the trouble if a band tied with the knot they are using could be submitted, and if there is anything further I could do to be of help in this matter I should be only too glad to do it.

CONTRIBUTOR NO. 6840

Try It Yourself Sometime

EDITOR COTTON:

An incident occurred recently in our plant that I would like to pass on to other mill men. I have always contended that a superintendent should not let his job get so big that he cannot spend some time with each of his key men on their particular jobs.

I wanted to make some loom stoppage tests recently and called our research man into the office to tell him of my wishes. While talking with him I told him I wanted a comparative test made on two different sets of looms with different speeds. Then the idea came to me that I would take enough time to run the test on one of the sets of looms myself.

The very next day we began the tests; the research man was on one set of looms and I was on the other. While making the test and going to each loom that was stopped to determine the cause, I found we were having quite a number of stops of a certain type. It was something new to me and I felt that I knew what was causing this trouble. Upon completion of the tests I asked the research man if he had found the same causes as I had, and his reply was in the affirmative. Upon asking him under what heading he had listed this particular stoppage. he said under "loose lint on yarn". This was correct but there are a number of processes in the mill where loose lint could accumulate on the yarn, and I never would have guessed which process was causing this trouble if I had not seen it for myself.

This one cause was making 17 per cent of my loom stoppage and I was able to cut it to a minimum at once because I knew where to look for the trouble.

As this was the case, don't you think it was worth my trouble and effort to spend this much time with the research man? Since that day I have personally made some end down tests and have discovered some interesting things that otherwise I would not have found, and I also have been able to post the research man on these items and he can make more thorough reports to me in the future.

But I still intend to make some actual tests *myself* periodically.

CONTRIBUTOR NO. 6737

Dirty Card Flats

Suggest using a burnisher roll, re-setting the back knife plate, and eliminating oil or belt dressing from getting on the flats . . . . . .

EDITOR COTTON:

On page 95 of the March issue of COTTON, "CONTRIBUTOR No. 6787" asks for a method of cleaning dirty card flats.

I have had much experience with dirty card flats and with the flats filling up. The best remedy for this is to put a burnisher roll on the card and clean the flats thoroughly of cotton, trash, dirt, and any other foreign matter that has accumulated between the knee and the foundation. Also the burnishing will polish the flat wire and will remove any rust that may have accumulated.

After the burnishing, I suggest setting the back knife plate at the upper edge to the cylinder with a 15/1000-inch gauge and the lower edge to the cylinder with a 22/1000-inch gauge.

If the cards are located so that no water will leak on them and cause the flats to rust, "CONTRIBUTOR No. 6787" might notice if any belt dressing is flying off the belts where it has been used in liquid form. Also, oil may be dripping from the hangers onto the flats.

I believe if "CONTRIBUTOR No. 6787" will try the foregoing suggestions, he will have less trouble with his dirty card flats.

CONTRIBUTOR No. 6842

Spinning Questions

EDITOR COTTON:

I would respectfully ask your indulgence in the matter of a few questions on ring spinning, thinking that perhaps some of your many readers might be able to give me some advice through your "How OTHER MEN MANAGE" department; they are as follows:

1. What is the life of spinning rings working continually on coarse counts up to 40s, and those on fine counts up to 150s, and at what period is burnishing of rings recommended?

2. Is the cleaning of rings occasionally with a liquid preparation advisable, and, if so, what best suits the purpose?

3. What apparatus is used for removing the old oil from the spindle bolsters? We have trouble in not getting the dirty dregs entirely removed from bottoms.

4. We have a bit of trouble with "sloughing off" at the winding off at about 2 inches from the bottom; this gives us complaints from the weaving department, chiefly on 36s and 50s on 5/8-inch bobbins, 8,000 r.p.m., spindle speed.

5. Is as heavy a traveler as possible considered best for the yarn, or as light a one as possible preferred by the spinner for better spinning?

6. What clearance is recommended between yarn on the bobbins and the ring and what method is used to measure them? We allow 1/8-inch clearance and use 10 bobbins.

I trust you will excuse so many questions from me, but I have really been helped very much by reading your instructive journal and the practical hints given by the contributors during the years I have been a subscriber.

CONTRIBUTOR No. 6845

Striped Filling

EDITOR COTTON:

"CONTRIBUTOR No. 6825", in his question on page 131 of the May issue of COTTON, is having trouble with striped filling and asks for a blending process for colored cotton. He is using 7/8-inch stock, making a 13-ounce lap, on a single-process picker with the breaker beater having a speed of 1100 r.p.m. The intermediate section has a 2-blade beater and is also making 1100 r.p.m. The finisher section has a carding beater and it is making 975 r.p.m.

The grid bars on openers are stationary so we suggest setting the beater 5/8-inch from the feed rolls. Then put blocks of wood between the grids at each end of the bars. The blocks can be of 3 or 4 sizes, ranging from 1/8-inch to 1/2-inch in thickness, according to the amount of waste which is desired to be removed.

If the opener is the vertical type the bars are regulated with a lever.

The grid bars on pickers are set 9/16-inch from the beater at the top and 12/16-inch from the beater at the bottom. The bars can then be opened or closed to get the amount of waste desired. All pickers will not give the same results with the same settings unless the fan speeds and drafts are the same. It may be necessary to speed up or slow down on the fan.

We have been able to get a more uniform lap by boring a row of about 12 one-half inch holes just under the rim of the beater bonnet.

We believe the best place for blending colored cotton is on the picker. If two or more colors are being run into a blend, the arrangement of the laps will affect the blend. This should be experimented with and then the laps should be run that way all the time; that is, the white lap is run in the back position, then a red lap, green lap, and another white lap. This arrangement should be followed at all times.

CONTRIBUTOR No. 6843

EDITOR COTTON:

Answering "CONTRIBUTOR No. 6825", who is asking for a blending process to eliminate striped filling, we offer the following comments. Using 7/8-inch cotton we set the grids on the single-process picker on a graduating scale; the first bar below the feed plate is set to 3/16-inch and this gradually increases to the middle of the bars to one inch and then decreases to 5/16-inch at the top bar next to the screen section. This gives more open space in the middle for the trash to knock out without losing good fiber.

Blending cotton has to be done in such a way as to conform to the needs of a particular mill. What

will work with one class of fabrics might not be satisfactory at all for another.

We mix from 8 to 18 bales of dyed cotton and run it through a breaker and finisher picker. As soon as this lot comes through, we run test samples through the carding and spinning rooms and check very closely with the previous lot of the same color. If it does not match exactly we keep the two lots separate in the weave room. This enables us to eliminate striped filling.

If the fabric has only one color filling but is being woven on a multiple box loom, we use two shuttles in an effort to eliminate striped filling.

CONTRIBUTOR NO. 6844

Neps in Dyed Raw Stock

THE FOLLOWING QUESTION was received by the editors of COTTON and passed along to three mill men for them to offer an opinion on:

"Is it possible by any process, mechanical or chemical, to make nep-free raw stock dyed yarns that will not give fabrics a speckled appearance? For sometime I have tried to get a nep-free raw stock dyed yarn in a sulphur black that could be woven in a 2/2 herringbone twill on 24 ends of twill in each direction. I have tried double carding, carding a slow speed of doffer, dyeing carded stock and re-carding. None of these seems to give me the results I wished."

The first man replied as follows: "I checked with the superintendents of both our suiting and blanket mills this morning and they frankly admit that they do not know of any way that neps can entirely be eliminated from dyed raw stock.

"We double card at the suiting mill and still we have neps and specks in the finished product.

"It has been our experience that the closed or vacuum type dye machine leaves the stock in better condition than the open revolving machine and this is about the only suggestion we can make. Selecting raw stock as free from neps as possible and careful processing is about all that can be done to eliminate neps. I am wondering if there is any possibility of using dyed yarn either chain, package, or beam, and eliminating altogether the raw stock dyeing."

The second reply to the question said, "Since the man making the inquiry says he has tried double carding, carding at slow speed of doffer, dyeing carded stock and re-carding, then it would seem there is not much more he can do mechanically, because giving the cotton a good cleaning before dyeing is most beneficial. Neps and dead fiber show up more in light shades of black than they do when the cotton is dyed a heavy shade; consequently, we suggest he dye a good heavy shade and perhaps increase the dyeing time 15 minutes to 30 minutes."

The third answer: "As I see it, the greatest difficulty to overcome in dyeing sulphur black is the presence of immature fibers in the cotton. These fibers cannot be made to take the dyestuff, and they show up in the dyed material as light spots or specks. The fact that the fibers are immature causes them to curl up in the various processes through the mill, making small neps or balls of fibers. The various degrees of "ripeness" of these fibers causes considerable variations of the foregoing effects.

"In the dyeing of sulphur black it is necessary to use a great deal of dyestuff and chemicals, more than with other colors. On account of this there is a great danger that undissolved particles of dyestuff are left in the raw stock that cannot be washed out.

"These particles gum up the fibers, causing them to roll into neps that do not clean out in carding because they can be seen in the web at the front of the card. Motes or pieces of leaf and seed will also cause neps but this condition should be remedied by double carding.

"Cotton that has mildewed from being stored too damp will also cause faulty dyeing and processing which will cause the neps."

If any readers have further suggestions to help this inquirer, we shall be glad to publish them in this department.

Comb Box Lubrication

EDITOR COTTON:

We will try to answer the questions submitted by "CONTRIBUTOR NO. 6826" on page 128 of the May issue of COTTON, in which he requests information on the subject of comb box lubrication on cards. This comb box question should be growing a beard by now as it has been in existence a long, long time. We can remember the time a salesman recommended that we use a heavy grease in our comb boxes. Four of our comb boxes were fixed up for the test, using the heavy grease, and for awhile they were the quietest, coolest comb boxes that we have ever seen. At the conclusion of the test, however, the only benefit found was that we had four brand new comb boxes replacing the ones that, admittedly, were somewhat worn before starting the test. Of course, this test cost plenty and since that time we have always used a medium weight oil.

Getting into the questions asked by "CONTRIBUTOR NO. 6826", we are glad to give the following answers: 1. The average speed of the comb box pulley is 1487 r.p.m. The maximum speed is 1506 and the minimum speed is 1468 r.p.m. 2. The room temperature during the test was 77 degrees. The approximate difference between the room temperature and the comb box temperature now is 48 degrees. The maximum difference is 52 degrees and the minimum is 43 degrees. A higher comb box temperature indicates that more power is being consumed. This is our opinion, but we have no instruments sensitive enough to ascertain this. Furthermore, the cards are driven from a group drive, which makes a test rather difficult to get. 3. The comb boxes are oiled once every 72 hours. The oil is checked in the boxes and we add about two ounces of oil each time. 4. A comb box will use approximately 3 ounces of oil per 100 card hours. 5. We use a heavy oil for old or worn comb boxes. A new box will last longer and give better results if a light grade of oil

is used in it from the start. 6. When we inspect the boxes we have found sludge, gum and stopped-up oil holes. 7. In our opinion, the oil that apparently disappears from the comb box gets onto the clothing and the floor. This is very objectionable and can be helped somewhat by using a leather washer to keep oil from the clothing. The quantity of oil in the boxes does seem to affect the temperature somewhat, especially if it is allowed to get too low. 8. Practically everybody agrees that it is best to clean the comb boxes thoroughly at least once a year, putting in fresh oil at the time. Some mills practice this, but it is hard to get a card room to do it on schedule.

CONTRIBUTOR NO. 6833

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EDITOR COTTON:

This is in answer to "CONTRIBUTOR NO. 6826" who has asked questions on comb box lubrication in his letter on page 128 of the May issue of COTTON.

In view of the somewhat conflicting claims of the various oil companies concerning their comb box oils and the type oils to use in the comb boxes, we decided to conduct a series of tests of our own in order to try to gather some information on comb box lubrication. In this test we were primarily interested in determining which of several oils were best suited for comb box work. In order to have a basis for the test, we assumed that friction in the comb box would produce heat, less friction would produce less heat, more friction would produce more heat, and this heat would in turn raise or lower the comb box temperature proportionately. In this way we would have some idea as to the ability of the oil to lubricate and to alleviate friction.

We used 10 cards for each of three types of oil. Sample No. 1 was a compounded oil; sample No. 2 was a medium weight, straight run mineral oil; and sample No. 3 was a lighter weight straight mineral oil. These 30 comb boxes were drained and cleaned out with steam under pressure and the 10 card comb boxes for each sample were filled with each type of oil. The cards were allowed to run 48 hours before beginning the check. Then two readings were made daily, for a period of two weeks, on the temperature of the oil in the comb box. The room temperature was also checked daily for comparison with the temperatures of the comb boxes of oil.

From this study we reached the conclusion that the medium grade straight mineral oil gave an average lower temperature than either the compounded or the light oil and consequently was better suited for our purpose.

A study of oil refining shows that the thinner or more volatile oils come off at lower temperature, so they necessarily would not be entirely suitable for use where some heat is bound to be present, even though they are characterized by the ability to volatilize with little or no residue.

By the same reasoning, the heavy oils are undesirable, not because they can stand great heat and agitation without breaking down, but because they leave a greater amount of solid residue where they do break down. If the compounded oil is of such a type that leaves residue in the comb boxes, it is not desirable. This has been our experience. Thus, the question resolves itself into the selection of an oil which will be thick enough to withstand agitation and heat, yet be thin enough to volatilize without excessive residue. Hence, the selection of a good grade, medium weight, straight run mineral oil by the temperature method of testing.

It has been found from practice that a comb pulley speed of about 1500 r.p.m., with variations of from 1400 to 1600 r.p.m. gives satisfactory results. Comb box oil temperature generally averages about 125 degrees F. with room temperature of 80 degrees F. and a relative humidity of approximately 55 degrees F. Generally the comb box oil temperature exceeds the room temperature by about 50 degrees F., though the difference in the test performed was greater at higher room temperatures and less at lower room temperatures.

Temperatures of comb boxes vary from 118 degrees to 140 degrees with room temperature of approximately 80 degrees, while about 125 degrees seems to be a working average.

Ventilation and cleaning (externally and internally) will help reduce temperature, either by alleviating friction or dissipating the heat which has been generated. I think there is no doubt but that the temperature is an indication of the amount of friction being overcome, and I know that the amount of friction being overcome is an indication of the power consumption.

Comb boxes in our plant are oiled once each week. This period is not determined by the fact that the box needs oil, because if it needs oil at 1600 oscillations per minute, it is generally too late, but by the fact that a box will run approximately 120 card hours and not need oil, while if it runs two weeks it will generally have a low supply of oil. About two ounces of oil are added at each oiling, sufficient oil being added to bring the level to the top of the eccentric when the eccentric is at bottom center. This amounts to a consumption of two ounces of oil per 120 card hours, or about 1.67 ounces per 100 card hours.

Examination of inside comb box shows that some sludge and foreign matter collects and clogs up oil holes in spite of the best precautions; so, it is necessary to drain the box at intervals of about 12 months, refill with gasoline, and let run a few seconds, or turn the pulley by hand for several revolutions, drain out the gasoline, and blow out with air hose. Then refill with fresh oil.

When oil disappears from the comb box, probably the same reaction takes place that takes place in the crank case of an automobile, except on a slower and smaller scale. Some of it is thrown out mechanically, and some leaves as a vapor. Some of the more volatile components are driven off as a gas, while still others are broken up into carbon dioxide and water, both of which are given off as a gas or vapor in the presence of heat, the residue forming the sludge found in both the crank cases of automobiles and in the comb boxes of cards.

It has been observed that the quantity of oil in the box has some effect on the temperature. The temperature rise of an overfull box may be the result of

trying to churn too great an amount of oil in the box; this will consume some energy in friction, much like starting an automobile on a cold morning with a crank case full of 60 weight motor oil. The motor heats up, overcoming the resistance set up by the oil itself. However, in the underfull box, the lubrication continues as long as the eccentric can scoop up the oil where it will be splashed over the bearing. If the oil gets high enough to cause whipping or foaming, its lubricating value is nil.

A small amount of graphite flakes (one or two grams) will help cool a heating box. However, this should be drained out after two or three days and refilled with new oil after the box has had time to adjust itself and quit heating.

CONTRIBUTOR NO. 6834

Uneven Run-Outs on Two-Beam Work

Correct yardage placed on beams at slasher; a gauge for testing take-up on the loom . . .

WHEN CERTAIN TYPES of cloth are to be woven with two or more beams, extreme care must be exercised in laying them out. This precaution is necessary in order that each beam runs out simultaneously. The laying out of the weaving plan cannot stop with the beaming or slashing of the correct yardage on each beam, but it must be followed with the same care in the weaving.

There are many weave rooms where either the top or bottom beam runs out before the other. When the difference between the two beams is only a few yards the run-out is considered good. On the same goods, often the run-out will be fairly close and at other times there will be a great difference in the yardage left on one beam after the other beam has had the warp to run out. If the two beams could be made to run out at about the same time it would mean a saving in labor, material, and would release looms for further orders without unnecessary delay.

If the slashing lay-out has not been figured correctly and the proper yardages are not on the various beams going to the same loom, the weave room is at a disadvantage in trying to make the beams run out together from the beginning. Again, if the slashing lay-out is correct, but is not followed by the slasher tender the same condition will prevail. Finally, if the weave room receives the warps with their proper yardage on the beams, but has no definite method of checking the take-up in the warps by a system of regulating the tensions on the warps, the run-outs will still be uneven.

If any of the foregoing conditions exist there is only one outcome, additional warps must be made to match the warps that have not been woven, and the new warps must be twisted onto the run-out warps in order that necessary yardage of cloth is produced. It may be seen readily that in such instances the cost of weaving is increased tremendously and the chances of making a profit are lessened.

A warp on one beam usually runs out before the warp on the other beam or beams because of too much take-up rather than there not being enough take-up in the other beam.

Factors in Determining Take-up

There are a few factors that must be considered in determining the amount of take-up on each beam during weaving; some of these are weave, sley and pick, warp numbers, filling numbers, and the nature of the fabric. When a gray sample is on hand for duplication it is comparatively easy to determine the contractions necessary to compensate for, but if no sample is available the problem is considerably harder. It is then necessary to have a knowledge of the various fabrics, their nature and character, before estimating the yardage for each beam.

Some fabrics require a certain amount of take-up on one or the other warp—no more and no less—if the character is to be preserved, and in such fabrics there is no option for the calculation of yardage on the beam. Other fabrics require a comparative take-up on each beam to preserve the balance between the two. For instance, if the cloth being woven is a plain corded stripe with the cord yarn running from the top beam, too much tension on the top beam will prevent the yarn on it from getting the required amount of take-up, and the cord will be woven too tightly and will stand out on the surface of the cloth while on the loom, but as soon as removed from the loom so that the tension is lessened, the cord will pull the body of the cloth and cause it to crinkle. In order to overcome this condition the finisher must use excessive stretch, which may break or weaken the cords.

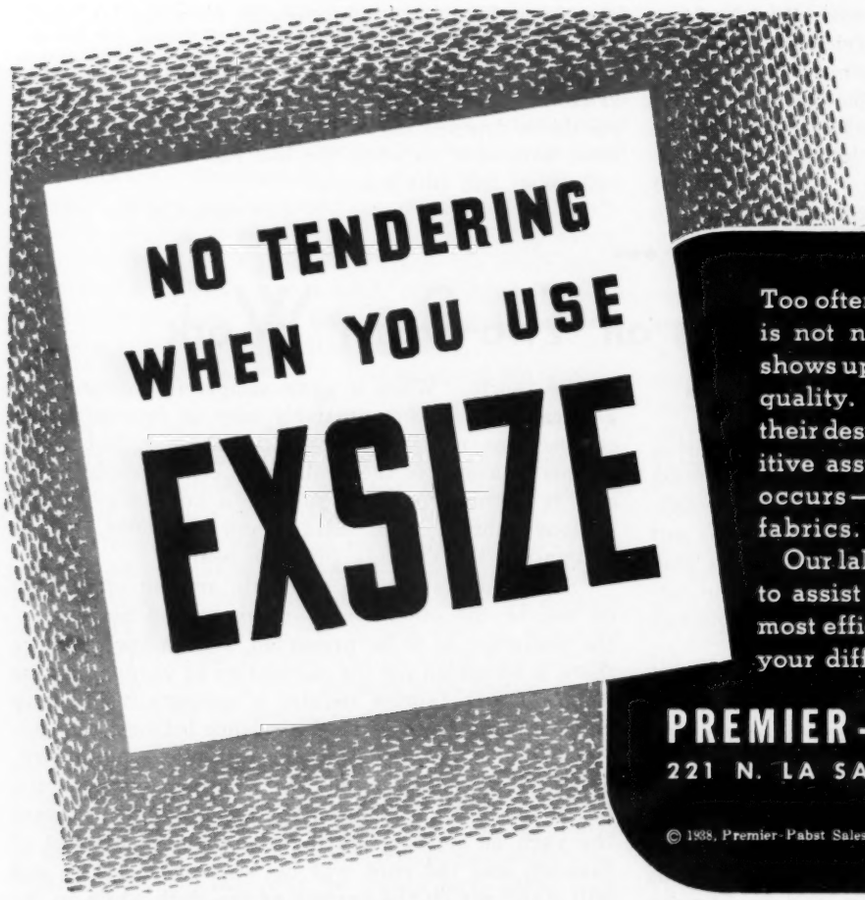
The same condition will exist if the bottom beam is run with too little tension and is allowed to contract more than necessary.

On the other hand, if the tension on the top beam is not tight enough and the take-up is more than necessary, the yarn in the cord will not lay straight but will curve, even on the loom. This condition will be even more pronounced when the cloth is removed from the loom. It would also have a tendency to form loops with the cord yarn either on the face or back of the cloth.

On fabrics of this type it is not absolutely necessary to adhere to specific warp tensions or contractions as long as the ratio between each warp tension is the same (up to a certain point). It is, however, safer to regulate tension of warps to give a specified take-up and keep this constant.

In many weave rooms the warp tensions and take-ups are regulated by sense of touch only. The loom fixers visit each loom in the morning and feel the warp and the cloth, adjusting them as they think necessary. The next shift does the same. The resulting cloth may be acceptable, but in one mill observed by the writer, the run-outs on the top beams often left as much as 300 yards on the bottom beam—this mill was always twisting in top beams.

The answer to this problem is obvious. This mill



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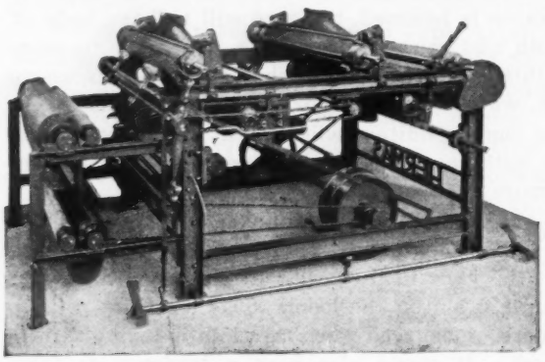

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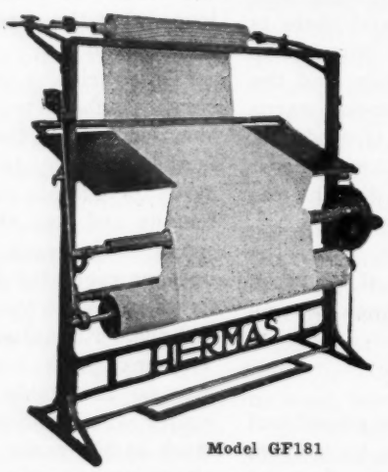
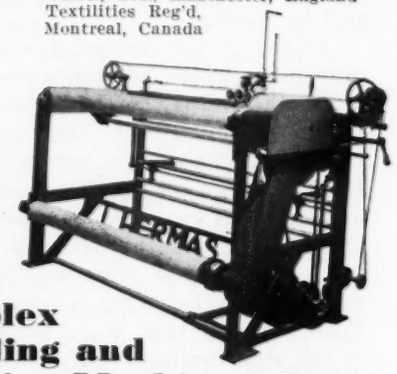


Model GF181

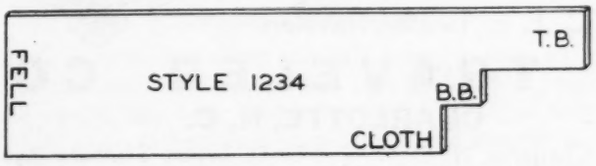


Duplex Rolling and Sewing Machine (above)
Permits continuous operation of shear or other machine. Cloth is fed from one roll into a second machine while another roll is being built up.

has delegated the check-up to more than one man. Every man's sense of touch is not the same, or rarely so, and then again it is hard for a man to depend entirely on his own sense of touch. This is the case with most loom fixers, second hands, etc. The cloth that feels tight today may feel right tomorrow.

Gauge on Testing Amount Take-up

Uneven run-outs are not the only evil connected with this sense-of-touch gauging. When a fabric is woven where a definite take-up must be inserted in order to give it the character desired, it is imperative that this take-up be accurate. Therefore, no sense of touch should be relied upon. It is easy to make gauges and use them. One is illustrated in the accompanying sketch. This is made from a piece of brass about one inch wide and 1/16-inch thick. The overall length is determined by the percentage of take-up from the warp requiring the most take-up. This is figured from an assumed amount of woven cloth, usually about three inches, to which the amount take-up length is added. The point for the other beam is measured in a similar manner.



In order to gauge the take-up on warp yarn weaving from different beams, the gauge is placed at the fell of the cloth at the end marked "Fell" (with the lay all the way at the back of its throw). The gauge points towards the reed. A very fine line is drawn at the fell of the cloth and another line is drawn on the yarn from the bottom beam at the point of the gauge marked "B.B." Then another line is drawn on the warp from the top beam line at the point on the gauge marked "T.B." The loom is started and the cloth woven until the last line is woven into the cloth. Marks "T.B" and "B.B" should merge into one line or be on the same pick when woven into the cloth. Then the line is formed from marks "T.B." and "B.B." and the line made at the fell of the cloth in the first instance should be spaced exactly as spacings on the gauge marked from "Fell" to "Cloth".

If the mark "B.B." is first woven into the cloth and the space between this mark and the "Fell" mark fits the gauge "Cloth" measurement, then the bottom beam take-up is correct but the top beam is too tight. If the "T.B." line is woven in before the "B.B." line and the "Cloth" gauge fits the "B.B." marking, then the top beam is too loose. Should the same thing occur except that the "Cloth" gauge fits to the "T.B.." marking, then the bottom beam is too tight. It isn't hard to figure what is wrong once the gauge is used.

The gauging should be detailed to one man throughout the weave room on each shift. This will allow the man to adjust himself to his task and become efficient and accurate. He will become so expert at gauging and adjusting that his work will only take a short time.

One check-up on each shift is usually sufficient if strict orders are given and carried out, and if no one but the man detailed to adjust warp tensions does this work. This gauging will not only preserve the character of the cloth but will also allow even run-outs, providing correct yardages are put on the beams.

P. R. K. (MASS.)

A Description and Study of Machine Printing of Textiles

(Continued from page 54)

ing placed in the center of the cylinder, tapering towards the edges so as to make up for the bending of the roll and mandrel and permit even registration of the pattern from side to side.

Among the many troubles which may occur during the course of a run, and for which the printer must be constantly on the lookout, are "scratches". Scratches are caused by some piece of grit, sand or metal, getting under the doctor blade and cutting into the surface of the roll so as to cause a fine streak of color to appear on the cloth. When a scratch occurs it is usually removed by the application of a stone to the copper roll while running, thus burnishing it out. In removing scratches, however, especially if there is a recurrence of them several times in the same place, the printer must be careful that he does not make use of the stone too freely. Otherwise he brings about another imperfection. If the roll is burnished too much at one place, the engraving becomes shallow so that it prints weaker at this point than any other place. Once this occurs, there are several solutions, one is to stone the entire roll down until the engraving is all of the same depth, or if it is worn too deeply, to turn off the roll and re-engrave it.

Another and common imperfection arising in printing are "snaps". These are usually large double stripes of color running lengthwise up the cloth and are caused by loose threads or bunches of lint getting into the color box and working their way up under the doctor blade, thereby lifting it and allowing color to escape on either side. Hard particles of starch, precipitated color, or any other comparatively large object gives rise to the same effect. To overcome this trouble, when the snaps are not appearing too frequently, it is usually sufficient to clean off the doctor blade and the shell with a piece of cloth, but if the snaps are occurring quite often, it is advisable to either throw away the color in the box, or re-strain it.

Fine color streaks, usually appearing near the selvage, are another source of trouble. They may be caused either from a long scratch on the roller or a snip in the edge of the doctor blade. "Doctor streaks" however, can usually be identified, due to their wavy motion produced by the doctor's traverse action, whereas the scratches on the copper roll will run straight.

"Scrimps" are still a further trouble. They are caused by either fine wrinkles or double edges in the cloth and they show up either as fine or large white streaks where the color has not reached the folded-under portions.

The printer must watch for "scumming", where a very thin film of color is deposited over the whole sur-

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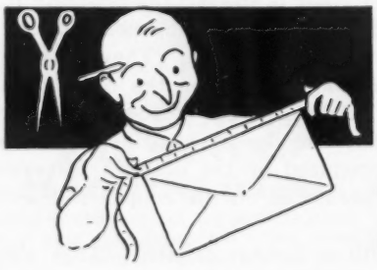

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face of the cloth, staining the ground if it be white and if the scumming is bad, altering the cast of the other shades in the pattern. This is due to insufficient cleaning of the copper roll and may be caused either by a poor doctor edge, a poorly adjusted doctor, so that the edge does not rest on the roll in the right position to remove all superfluous color, a roll that has not been burnished so as to have a perfectly smooth surface, or to color which is too gummy or adhesive tc be completely removed by the doctor blade.

There are numerous other imperfections which may arise in the course of printing and for which the printer must be on the lookout, but since they are not mechanical ones and are largely due to the physical or chemical nature of the dyestuffs, thickeners, cloth, etc., and are not caused by the print machine itself, they will be taken up in a subsequent article, dealing with dyestuffs and printing thickeners, as prepared in the color shop and the after-printing operations of ageing and soaping.

(To be continued)

An Old-Timer Says—

(Continued from page 93)

$10.00 a week, and when they did begin to earn more than that we would continue to pay the $10.00 a week and credit the back amount with the amount over $10.00 a week that they earned until the amount advanced had been paid back to the company. For example, when the young man began to earn $12.00 a week we would still pay him $10.00, plus a receipt of $2.00, on his back account. Later, after the NRA went into effect, we raised the base amount to $12.00.

Oh boy! you should have seen the faces of some of those young men light up when we would explain this plan to them. Of course we had many provisos in the agreement which would take too much space to explain here; one was that if they left our employ before paying up what the company had advanced they were in honor bound to pay up the balance from their earnings at the other mill or firm where they might be employed.

(OLD-TIMER wishes to state, for the benefit of overseers and superintendents and all others who believe that there are not many honest people left in this old world, that each and every textile graduate with whom we had this gentleman's agreement, with one exception, stood up to his bargain in full. One young man was taken down with typhoid fever a few weeks after starting to work and had to be taken home, and we heard nothing more from him.)

Realizing that some of the textile graduates who started their mill work with OLD-TIMER did not participate in this plan, let me state that the plan was not inaugurated until about 1930 (I'm not sure of this date), and all textile graduates who started with us before that time of course did not receive its benefits; however, in 1934 there were 13 textile graduates working in the large plant where the system was originated.

(We must interrupt Old-Timer at this point, and continue the discussion in the next issue. In the next installment, Old-Timer really gets down to cases in answering Jim's question and in recommending some opportunities, as he sees them, for young men starting out on their careers.—The Editors.)

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214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56-page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

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CONTINUED ON PAGE 106

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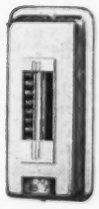

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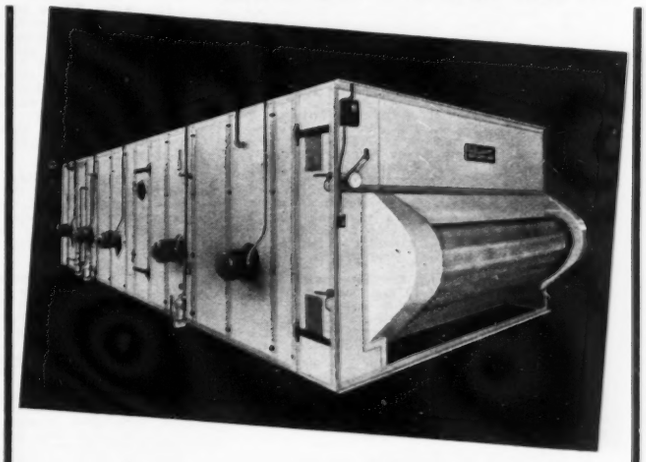

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Continued from Page 104

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Timely Kinks and Helpful Hints

By Caswell Clifton

We might say, though tritely: To the victor goes the spoils. But we also add: To the craftsman who keeps himself posted on up-to-date tricks of the knitting trade, or any other trade, comes the satisfaction gleaned in knowing that he is, to use the vernacular of the street, "tops" in his particular line of endeavor and not in a class with the sluggard, who merely tries to "get by".

Following, then, are a few unique kinks which the enterprising full-fashioned foreman, or the "go-getting" knitter can use to advantage if they but apply them to the traditional art of knitting.

Confidentially Speaking—

Dull scissors are a decided handicap to every knitting machine operator, topper, seamer or finisher. Of timely help is the scissors sharpener as shown in Illustration A. To sharpen a pair of scissors, simply lay the blade flat upon either wing of the sharpener, as pictured, then press the cutting edge firmly against the side of the sharpening stone and proceed to draw the blade back and forth. Continue to rub the cutting edge against the stone in this manner until the proper degree of sharpness has been imparted to the scissors. The sharpening device, pictured, can be purchased at any first-class hardware store and the cost is so negligible that

Illustration A

every hosiery mill worker can easily afford to keep one handy.

Notice particularly the notch filed in the right hand blade of the scissors shown in the illustration. The purpose of this notch is as follows:

The knitting machine operator cuts all disengaged threads loose from the stockings while the machine is in motion; picking up said threads with his fingers before cutting them. By using the notched scissor blade to pick up these disengaged threads, the knitter does not run the risk of getting his fingers caught in the needles, narrowing points, etc. This is a unique method of cutting threads and one that is not generally known about.

Less Handling—Less Pullers

When finished sets of stockings are pressed off the needles of a footing machine, two methods are generally employed to prevent said stockings from sliding to the floor. Either the stockings are wrapped around the power rod of the machine, or else they

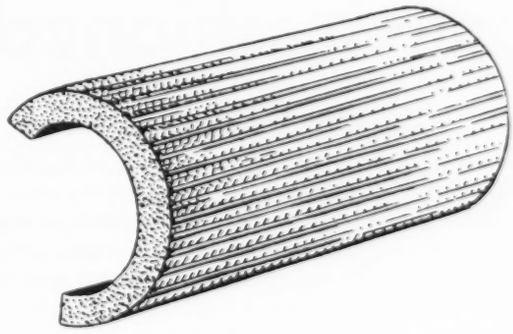


Illustration B

are pushed down over the inside of the machine table. No matter which method is employed, each is in itself dangerous, due to the fact that each incurs a maximum amount of handling of the stockings. And the more often stockings are handled, the greater becomes the danger of ensuing pullers and tears.

To overcome this condition, simply cover the power rod of the footing machine with corrugated rubber hose. (Illustration B.) The corrugated hose will transform the power rod into a non-skid arrestor upon which the stockings will not slide after they are pressed off the footing machine needles. The time required to take finished sets off the machine will be slightly reduced and a lot of excess handling of the stockings eliminated, thereby decreasing the amount of throw-outs due to pullers. The cost of corrugated rubber hose is nominal and this idea merits the attention of every enterprising knitting room foreman.

Et Cetera, Et Cetera

The straight, square-tipped, or so-called German type of needle plier is usually a clumsy affair and ill-adapted to the fine art of knitting. And the turned-up, or so-called English type of plier is generally conceded to be out of all proportion. The ad-

vantages of a pair of pliers shaped like those in Illustration C. are as follows:

The tips of these pliers are sensitive to the touch and well-adapted for needle straightening, (especially beards) for pliering sinkers and dividers in the knitting machine, and also for threading carriers. The pliers pictured were filed to shape from what was originally a pair of straight or so-called German type pliers. Any straight or turned-up pair of pliers can be filed and ground to this desired shape and a knitter once having used this type of plier will be convinced of its practicability. It is not as cumbersome as the German plier; nor so out-of-proportion like the English type.

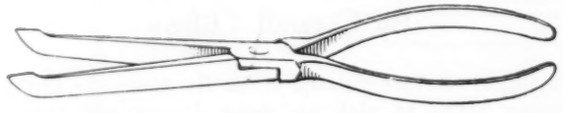


Illustration C

These kinks, or methods, although not in general use due to the fact that they are not generally known about, have been tried and tested in various enterprising mills and each one has proven its respective merits. If anyone using the prescribed kinks for the first time fails to find any benefits, he should remember that, often as not, the fault lies not so much with the new method as with the one using it.

The Maintenance and Fixing of Full-Fashioned Hosiery Machines

Coulier Motion and Settings

By Arthur J. Cobert

THIS is the ninth installment* of a series of articles on full-fashioned machine maintenance, being prepared especially for COTTON by a competent mill man. Thus far the vertical motion of the needles, the horizontal motion of the needles, the function of the regulator, the formation of the stitches, sinker-head and knock-over bar analysis, jack head and slur-cam analysis, adjustments in tension, and the narrowing machine settings have been discussed. This article concerns the coulier motion and settings. The author will take up any particular phase of fixing you may request, or will answer practical questions submitted to him through COTTON.—The Editors.

IN ORDER TO EXPLAIN FULLY the proper methods of setting and adjusting a coulier motion on a full-fashioned machine, certain fundamental adjustments must be understood before a comprehensive picture can be drawn of the timing and setting of this motion.

The two most important settings of the coulier are, the draw rollers in relation to the cam, and the timing of the clutch in relation to the slur-bar and catch bar.

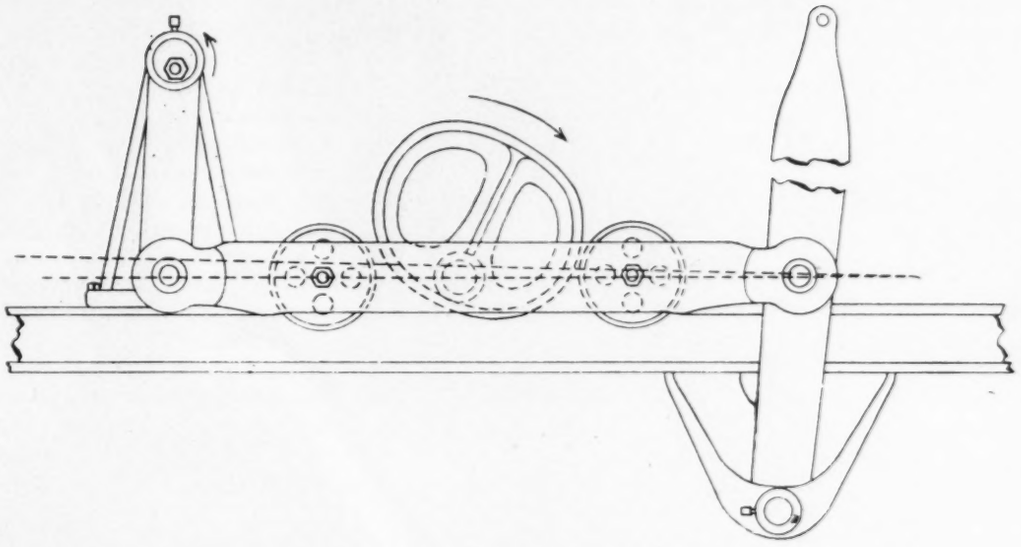
The draw rollers must be set as close as possible to the cam without the binding of either on any part of the revolution of the cam. When the coulier cam, in turning, changes from one roller to the other, the distance between the two rollers should be at a minimum, and as it leaves one roller should immediately contact the other on the return stroke of the slur-bar.

The clearance of the rollers to the cam is important from this standpoint; inasmuch as the longest lead of the carriers is desirable when knitting the widest portion of the fabric, it is necessary to keep them close. When the rollers are moved farther apart the lead of the carriers will be lessened in direct ratio to the distance of the rollers. This principle can be understood when fully explained. When the rollers are moved apart the total length of the slur-bar stroke is shortened. The carriers, on the other hand, are always moved the same distance at the widest portion of knitting. If for some reason, the slur-bar stroke has been shortened, it will not move as far past the stopping point of the carriers. Hence, on the return stroke the lead is shortened as both carriers and slur-bar start out simultaneously.

Unless the draw rollers are in the correct position the slur-bar motion will be thrown off center. The catch bar timing will then be late on one side of the stroke and early on the other. The important point here is to know which one is to be moved toward the cam and which one away. This is necessary to balance up the stroke. Where the rollers are set as close as possible and it is required to move them to balance the stroke of the slur-bar, each must be moved an equal distance in order to keep the total distance uniform.

For briefness of explanation we will illustrate an example which is typical of the usual difficulties encountered in practice. Upon inspection it is found that the machine in queston is out of time, this being quite evident during the knitting of the splicing when the rockers are in use. On one side of the

*The first installment appeared on page 103 of the July 1937 issue, the second on page 117 of the August issue, the third on page 119 of the September issue, the fourth on page 113 of the November issue, the fifth on page 131 of the December issue, the sixth on page 111 of the January 1938 issue, the seventh on page 109 of the March issue, and the eighth on page 137 of the April issue.



Sketch shows how clearance is reduced between coulier rollers and cam when the horizontal arm is raised by means of the eccentric stud at the end of the short vertical arm. This is on a left stroke of the slur-bar. The same adjustment increases clearance on the right stroke.

stroke the rocker rollers fall off the cams too late and on the return stroke fall off the same portion of the cams too early. There are several methods of approach in correcting this condition, one of which is as follows:

First, have the machine empty of fabric, and with a cam gauge test the cam shaft for uniformity of timing in relation to the slur-bar. Starting on the right side of the stroke moving toward the left, turn the machine until the first five or six sinkers have just been thrust completely forward. In counting these sinkers do not take merely one head as a standard, but take enough to strike an average over the entire machine. Here and there one slur-cock may be off center a little and these particular heads cannot be used for measuring the uniformity of the stroke. After the correct number of sinkers has been determined, a position somewhere on the cam shaft should be decided on as a point for the cam gauge. Any convenient place on a round cam can be used with any length gauge as long as the same spot is used on the return stroke. If there is no line or mark on the cam at the desired place, one can be put there by chalking the surface of the cam in the area of the gauge point and scribing a mark with the gauge. Naturally, a cam must be chosen where the cam roller will not erase the mark by turning the machine.

After the correct number of sinkers are counted and the point marked for the cam gauge, the machine must be turned until the return stroke brings out the identical number of sinkers as on the test stroke. The machine must be turned very slowly when the sinkers start coming out, in order not to pass the desired sinker. Do not back the machine up under any circumstances as this will nullify all chances of gauging. When the same number of sinkers are forward as counted on the starting side an inspection of the cam mark will show whether the coulier is balanced or not. If it is, the mark will come in the same place exactly on both strokes.

On the machine we are using for an example we find this condition: Starting with the slur-bar on the right side, going to the left, we count out six sinkers making certain that the sixth has just completed its forward movement and the seventh has yet a little distance to travel. Scribing a mark on the cam shaft we proceed to run the machine across to the opposite stroke. Bringing it in the same position, that is, six sinkers forward, we find the mark has already moved past the gauge by approximately a quarter of an inch. The roller now making contact with the coulier cam is what we term late and must be adjusted toward the cam in order to bring this side of the stroke earlier. Adjusting it away from the cam will make the stroke still later.

Changing Position of Rollers

Before the roller can be moved into a new position it must be determined whether there is enough clearance between the rollers and the cam at the end of the stroke to permit this change. If there is not, then both must be moved in the same direction an equal amount. There are several good methods of doing this, one of which is as follows:

With the machine setting in the position as previously mentioned the roller now making contact is late and must be adjusted toward the cam. Going around to the back of the machine, the left hand roller from where we are standing is the one making contact. This is the one that has to be moved closer to the cam. Have someone turn the machine backward until the roller in question clears the cam by approximately an eighth of an inch. Now move and tighten the roller until it again makes contact. Then have the machine turned slowly until the opposite stroke begins, just at the point where the rollers shift contact and move the other roller away until there is just enough clearance to prevent binding. This operation brings the rollers back to the proper clearance and at the same time moves the center of balance over somewhat. The gauging process must now be repeated, using new marks or a different number of sinkers for measuring. It may take several trials to balance the rollers into the proper position.

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This rule now follows: When on one side of the stroke the camshaft appears early (the mark going past the gauge point), the roller then making contact with the coulier cam must be moved in toward the cam. If the shaft appears late (the mark not having yet reached the gauge point), the roller making contact must be moved away from the cam. The opposite roller in each instance must be moved a like amount in the same direction if the minimum clearance is correct to begin with. Where excessive clearance of rollers is present move only the one roller closer to the cam on the side which appears earliest on the cam shaft. Then test clearance at end of stroke and repeat the gauging process.

Keep the rollers as close as possible without binding of either at any point of the coulier cam motion.

Horizontal Arm Important

Correct balance of the horizontal arm on which the rollers are mounted is also necessary. Upon inspection it may be found that although the rollers are set the proper distance on one side, they may be too close or too far apart on the opposite side of the stroke. This can be remedied by raising or lowering the horizontal arm on the end attached to the small vertical arm. An adjustment is placed here for this purpose. On some type of machines the stud on this end is fitted into an elongated hole and can be adjusted by means of a set-screw. Other makes employ the use of an eccentric shaft on the end of the small vertical arm which, when turned, raises or lowers the arm. This in turn affects the height of the horizontal arm on this end.

It will be noted that on one stroke of the coulier, going from left to right, the cam is coming up and on the opposite stroke the cam is moving downward. If the rollers are too close on the upturn stroke of the cam the horizontal arm must be raised. This automatically lessens the clearance on the return stroke, while increasing the clearance on the original side. If the rollers are too close on the down movement of the cam, the arm must be lowered. When an adjustment is made here the timing of the slur-bar should again be checked, as frequently the rollers can be brought closer together after balancing the horizontal arm.

Timing the Clutch

One other important adjustment of the coulier lies in the timing of the clutch which is mounted on the cam shaft together with the small pinion gear of the coulier motion. This adjustment controls the movement of the catch bar in relation to the slur-bar and affects the movement of the catch bar a like amount on both sides of the stroke. When the catch-bar motion is made earlier or later by moving the clutch, both sides of the stroke are identically affected.

It is necessary to time the clutch when the catch bar in its forward movement is too early or too late at the end of the stroke. In a previous article it was stated that some fixers differ as to the exact time the catch bar should start moving forward, therefore this point is more or less arbitrary. It has been found from various tests that if the catch-bar starts moving forward when the last two or three sinkers start coming out, good results are obtained. This adjustment will permit ample time for the slur-bar to clear the jacks before the catch-bar starts backward and also permit the catch-bar to release the sinkers in their forward movement on the new stroke.

In timing the clutch it will be found that on releasing it, that is, loosening the bolts which clamp it tight to the cam shaft, and turning the machine forward, the cam shaft will be made earlier. Turning it backward will make it later. Enough clearance should be allowed between the pinion gear and the clutch to prevent the gear from being turned too far when it disengages from the clutch. This clearance varies on different type machines. If the distance between the two parts is too close, the clutch will not disengage sufficiently to clear and if it does clear will probably strike the side of the pinion at a point where excessive wear will take place. This will happen when the clutch re-engages with the pinion on its return. On the other hand, if set too far apart, the clutch may not re-engage at all.

Balance of the draw cam itself is important to insure good operation of the clutch. All machines are equipped with a counter-balance located somewhere on the coulier shaft. Some machines have the coulier cam and gear keyed and pinned with the counter-balance mounted directly in the gear. There is no chance of these two getting off balance unless a new gear is to be installed. The counter-balance should be placed in such a manner as to afford the greatest amount of balance to the coulier cam, shifting the weight to the opposite side of the greatest weight of the cam. This is important for the operation of the clutch. Unless the weight of the coulier cam is equally distributed there is always the possibility of the clutch slipping out of time. It will be noted that when the machine couliers on the right side, the cam is on its upward turn. On this stroke there is less chance of the clutch jumping time as it is easier to bring the cam to rest in this position. If the machine couliers on the left stroke the cam is on its downward movement and it is much more difficult to stop its motion so suddenly. It is exceedingly important at this point that the counter-balance offsets as much of this weight as possible—hence the reason for placing all narrowings on the right side whenever practical.

The brake must always be kept clean and dry and sufficiently tight to insure satisfactory operation of the clutch. A brake is always tight enough when it brings the coulier cam to rest at the proper point during the normal speed operation of the machine. If made too tight the strain put upon the shogging assembly becomes excessive. It is possible to make the brake so tight as to prevent the shogging roller from dropping in at the desired point, causing the roller to jam between the two cams. Excessive wear will result at all points if the brake is too tight.

The leather used on the brake should be of good

(Continued on page 120)

Producing a Better Fabric at a Lower Cost

In full-fashioned knitting, the speed of the work is governed by the machine; the quality of the work is governed by the needles. Royersford Specially Finished Needles are a product of the most exacting series of tests ever devised for the control of production in needle manufacture. Because special finishing is a "standard" operation, you get Royersford Needles at the lowest price you ever paid for anything approaching this profitable performance.

The prescription for better knitting

ROYERSFORD NEEDLE WORKS, INC., ROYERSFORD, PA. : : Spring-Beard Needles, Narrowing Points, Picot Points, Lace Points, Welt Hooks, Transfer Points, Stand Points, Bent Points, Dull Points : : Sinkers, Dividers, Jacks, K.O. Bits : : Thread Holders, Carrier Tubes, Welt Bar Hooks, and Eyelets, Strap Cleats, Plate Hooks, Footer Hooks, Strap Hooks : : R.F. Clamps and Straps, Legger Straps, Tension Wires, Snapper Springs, Mend Hooks—for all machines : : *For Glove and Underwear Industries*—Milanese, Tompkins and Tricot Needles, Milanese and Tompkins Guides, Tram Travelers : : Development work. SOUTHERN REPRESENTATIVES: Dave Blevin, Provident Bldg., Chattanooga, Tenn.; Robert Baker, O. Henry Hotel, Greensboro, N.C.

ROYERSFORD NEEDLES

KNITTING KINKS

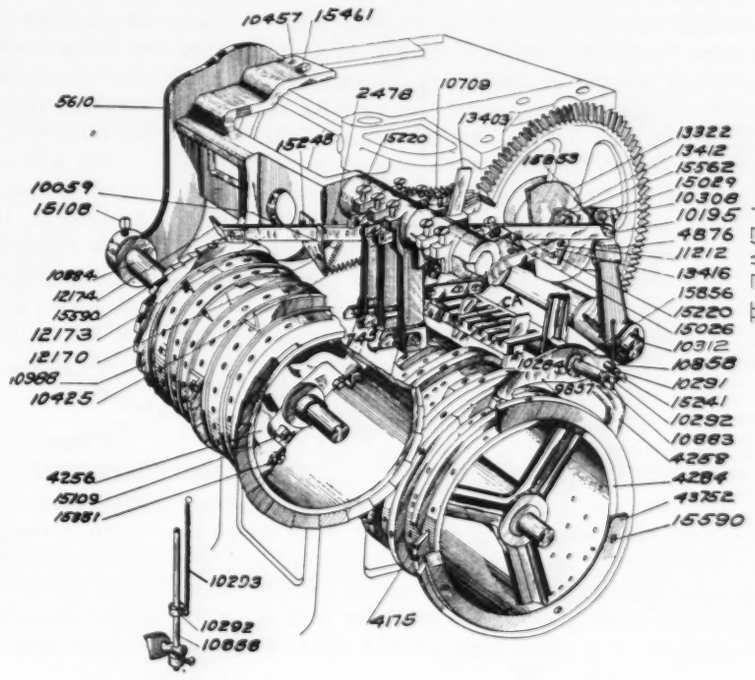
A Review and Discussion of Horizontal Striping Attachments for Scott & Williams Machines

SOME MACHINE FIXERS become confused when trying to arrange the various cams on the striper drum to produce a given horizontal stripe pattern or combination of stripes. If the layout is somewhat different from their customary styles they usually conclude that they can't make that combination of stripes on their machines; the boss wants to know "why not" and the battle is on. Unfortunately, some bosses, selling agents, and many so-called mill stylists do not *know* what the mills' equipment can produce. They find a number made by another mill which looks good to them; they make a few minor changes in colors and in the consecutive order of stripes, and the fixer is told to set up a machine and make a sample. The sample requested is, of course, very simple; he should be able to set up a machine (in his spare time) in a few minutes; in fact, the boss promised to send a half dozen pairs to the New York office via air mail tonight!

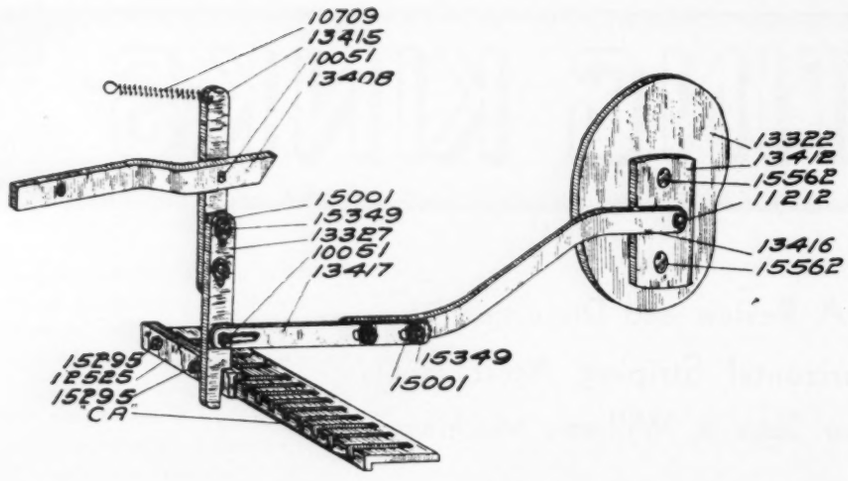
If the machine fixer *knows* his striper drums he can determine in a few minutes whether or not this hot number can be made at all, or if he can come reasonably close to making it as requested.

The striping attachment shown in Fig. 1 will make 24 changes plus the striper drum idling controls; these are the two determining factors in any stripe set-up. Horizontal striped numbers are usually arranged in panels or sections—that is, a given number of various stripe widths in two and three and four colors constitute a panel or set of stripes and these panels are repeated in consecutive order from top to toe. The striper drum ratchet wheel shown in Fig. 1 will make 24 one-course changes, 12 two-course changes, etc. Therefore, any stripe combination requiring more than 24 changes cannot be made on it. One-, two-, three-, and four-course stripes are usually made by using continuous striper drum movement; six-course stripes and upward are made by idling the striper drum, two striper drum moves being required to complete a wide panel. The amount of idling which can be done in the respective panels is determined by the striper drum starting lugs on the pattern chain links. These lugs are arranged in four-course moves or three moves per link of four courses each, or 12 courses per link. The starting links used are the regular 5649 single lug and the 5650 double lug. On many stripe combinations it is necessary to grind off the front or back of a double lug to get the proper amount of idling. Remember, Mr. Machine Fixer, when the boss asks you to make up a new horizontal striped number, you will save time and labor by first counting the number of yarn changes necessary to make one complete set of stripes; next count the number of courses in the wide panels to determine the number of courses the striper drum must idle. Do not attempt to arrange the cams on the striper drum or build your pattern chain until you have the set-up clearly in mind.

When the striper drum cams have been placed in their respective positions and the yarn shear blocks have been put in their proper places, it is best to check over all yarn changes, get the yarn laps even in length, make them as short as possible, and have all laps in the center of the short butt needles. Next, build the pattern chain and arrange the stop screws in the striper drum ratchet wheel so that the striper



Right, Fig. 1



THIS is a continuation of the series on the horizontal striping attachments for Scott & Williams machines. The first article appeared on page 147 of the April issue of COTTON and was a review and discussion of the development of the striping attachments. The series will be continued in an early issue.—The Editors.

Left, Fig. 2

drum will idle, stop, and start correctly.

The various cams used on the striper drum that supply the means for raising and lowering the yarn fingers are well made of hardened steel; both raising and lowering cams are slotted, permitting forward or backward adjustment and thereby providing a simple and positive means for controlling the length of yarn laps. Some fixers make a grave mistake when they grind the face of raising cams; changing their angle either way will cause trouble. These cams are designed to give the proper lifting action, and they will give excellent service if used as they are.

It is possible to purchase striper drum cams, striping attachments, and striping attachment parts at reduced prices from outside sources, but it has been my experience that better results have been secured by using parts supplied by the machinery builder.

The Yarn Fingers

There are quite a number of things which must be taken into consideration in setting up a machine on horizontal striped patterns. In this group will come the yarn fingers. In machine fixers' parlance, which finger shall we use for the different colors? Five- and six-finger machines are usually set up with the No. 3 finger being used for the heel and toe, and the others for the different stripes. Much depends on the stripe pattern but many costly errors can be avoided if all machines on a given style are set up exactly alike, using the same finger for each color, placing the various cones of yarn in the same place on the yarn rack, and threading all yarns exactly alike from cone to tensions and to the yarn fingers. The operator learns the set-up in a short time and can readily change from one color combination to another without making one of those costly errors commonly caused by crossing up colors in striped numbers.

Horizontal striped numbers in misses' and children's anklets are usually made up so the stripe across the instep matches the heel in color. This stripe is generally referred to as the body or leg yarn and the remaining colors, irrespective of widths or sequences, are simply called stripes. In addition to setting up all machines on a given style exactly alike, it is also profitable from more than one standpoint to adopt a standard method of setting up patterns using a certain finger on all styles for the body and the remaining fingers for the various stripes. For example, suppose a four-color stripe combination is to be made. No. 1 finger can be used for the body, No. 2 finger for a stripe, No. 3 for the heel and toe, and Nos. 4 and 5 for the remaining stripes. Regardless of the stripe combinations, this set-up could be adopted as a standard and I might add that such a system will prove profitable to the mill, the operators, and the machine fixer.

In this connection, pattern lay-outs can be made simple to understand if the body stripe is designated as No. 1, the next stripe reading down toward the toe as No. 2, the next as No. 3, etc. If a standardized method such as this is adopted, the fixer need only be told to make up a sample with No. 1 stripe navy 12 courses, No. 2 stripe red 2 courses, No. 3 stripe light blue 6 courses, etc. This means that everyone having anything to do with striped numbers, from the boss or stylist down to the operator, will be able to understand *why* and *how* when changes are requested, when complaints are made, or when there are machine fixing problems in connection with horizontal numbers.

We are constantly being reminded that it pays to advertise; let me add that it pays to standardize. And what is standardization other than common sense well applied, elimination of red tape, and doing any job the best way and not the easiest or laziest way. It is my opinion that standardization is the key to successful and profitable manufacturing in any line, including hosiery.

Yarn Clamp and Shears

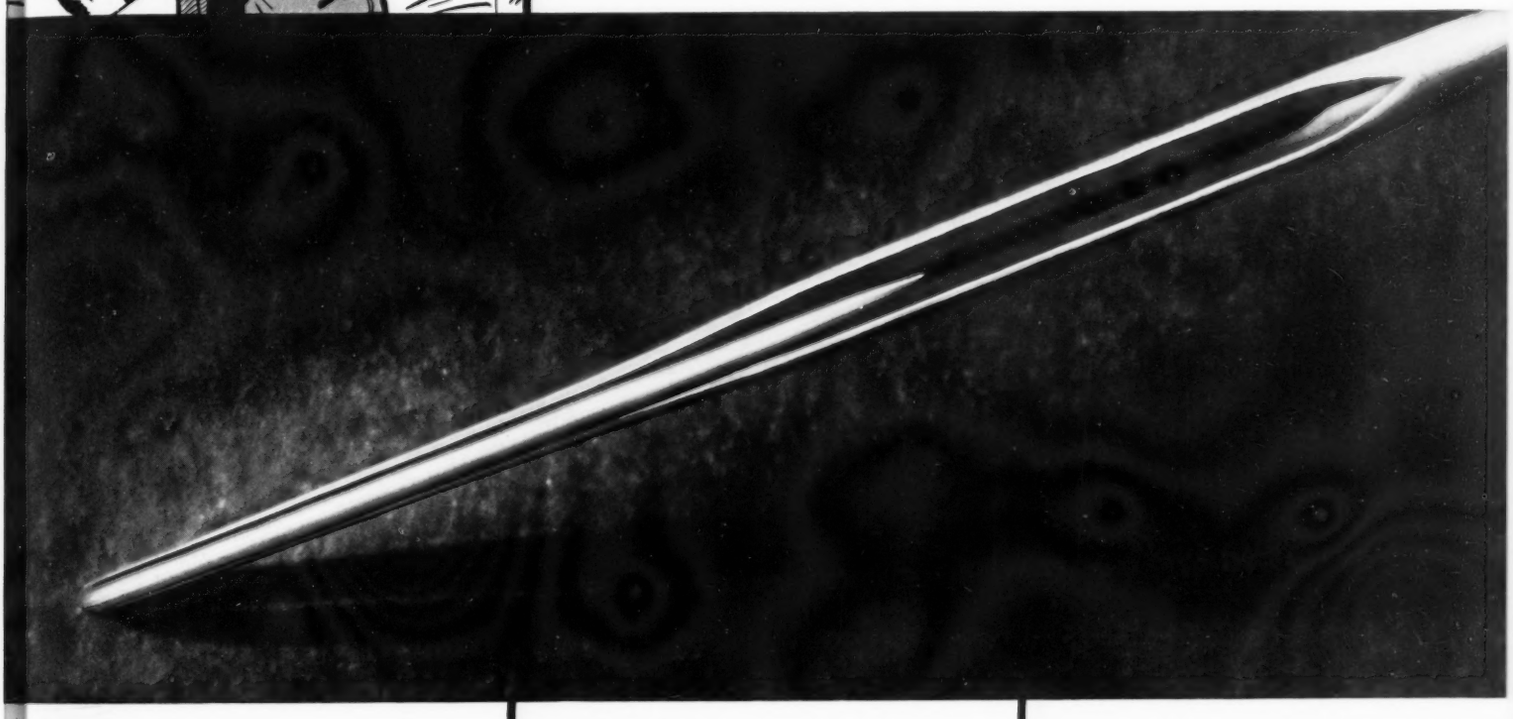
Every machine fixer knows that yarn clamps and shears are two mighty important items in connection with making striped numbers. And sad but true, there is no getting by in making adjustments—they either clamp and cut the various yarns properly or they do not. The bulk of all seconds, waste, and other imperfect work on striped production usually hinges itself around yarn changes, which includes

BECAUSE TORRINGTONS COST LESS TO USE!

The more accurately needles are made the smoother the knitting they do —and the lower their replacement costs. Note how Torrington *machine manufacture* achieves accuracy on a minute scale at one vital point

Joe, how do the men like the spring beard needles we're using now?

Very much, Mr. Williams. No doubt about it, Torringtons last longer and give us smoother knitting.

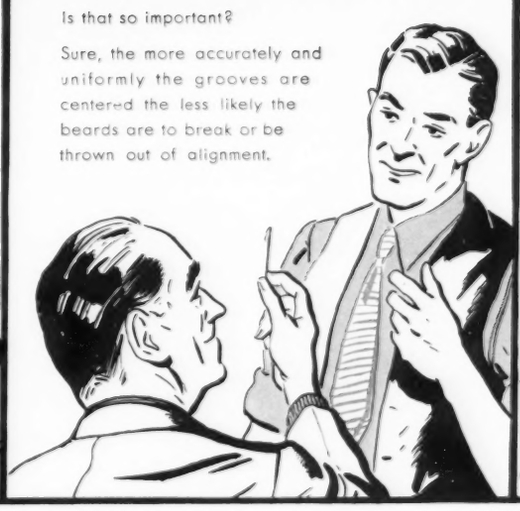


Have you figured out why?

Yes, it's because they're more accurately made. Take a small detail like this—the way the groove is centered.

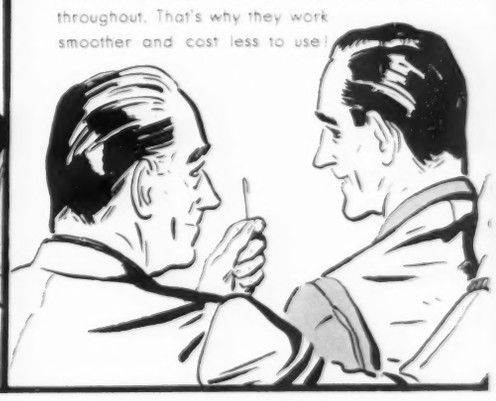
Is that so important?

Sure, the more accurately and uniformly the grooves are centered the less likely the beards are to break or be thrown out of alignment.



And Torringtons are more uniformly accurate at this point?

Yes, because they're grooved by a special Torrington machine method. In fact, they are machine-made throughout. That's why they work smoother and cost less to use!



TORRINGTON *Needles and Sinkers*

Each improvement in needle manufacture means an improvement in knitting. So steadily and consistently has Torrington pioneered improvements that the red and green box is today a symbol of needle progress. Knitters know that Torringtons are *machine-made*—and that their machine-made uniformity makes new standards of accuracy possible in knitting. If higher quality is your aim, let Torringtons help you make the improvement.

THE TORRINGTON COMPANY, TORRINGTON, CONN., U. S. A.

The Torrington Company	1640 Fairmount Ave., Phila., Pa.
The Torrington Co., Inc.	200 Fifth Ave., New York, N. Y.
The Torrington Company	538 South Wells St., Chicago, Ill.
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The Torrington Co., Ltd.	137 Wellington St. W., Toronto 2, Ont.
The S. M. Supplies Co.	210 South Street, Boston, Mass.
E. G. Poules	Bendix Bldg., Los Angeles, California

Factories at

Torrington, Conn. — Coventry, England
Upper Bedford, Quebec — Aachen, Germany

Torrington LATCH Needles

not only yarn fingers, thrust bars, levers, and striper drum cams, but also the yarn clamp and shears. On the first Scott & Williams' striping attachment, the yarn clamp and shears were opened and closed by chain links; the second attachment was supplied with shear blocks or cams placed on the striper drum. On both of these attachments it was at times and under certain conditions difficult to get the clamp and shears to work in proper harmony with the yarn fingers. The chain link or cutter block which opened the shears and clamp would also close it. True, the striper drum racking pawls were arranged to provide some delayed action but it was often difficult to time the clamp and cutter action with the yarn finger action and get perfect results.

On the third S & W striping attachment shown in Fig. 1, the yarn clamp and shear troubles have been eliminated in a most satisfactory manner. This attachment comes equipped with a supplementary clamp and shear controlling device (Fig. 2); it does not interfere in any way with opening the yarn clamp and shears, but is used only for closing them.

If the yarn clamp and shears are opened by the actuating lever finger (13408) raising the shear thrust bar, the regular clamp and shear cam on the striper drum supply the necessary motion. The shear cam is set forward far enough so the shear thrust bar will pass completely over the shear cam on one forward move of the striper drum. When the shear thrust bar reaches its maximum height, the spring (10709) attached to the long adjusting link (13415) pulls the short adjusting link (13327) forward, permitting the notch on its lower end to hang suspended over the catch plate (12525) while the shear thrust bar is passing over the shear cam on the striper drum.

As soon as the shear thrust bar clears the shear cam on the striper drum, the notch on the lower link (13327) comes to rest on the catch plate (12525) preventing the shear thrust bar from falling, thus holding the yarn clamp and shears open until the yarn that is to be cut goes under the clamp and enters the shears. The trip lever plate (13412), catch trip link (13416) and the adjusting catch trip link (13417) supply the necessary motion to knock the notched link (13327) off of the catch plate (12525) and thereby release the shear thrust bar, permitting it to fall and close the yarn clamp and shears. The adjusting catch trip link (13417) can be moved forward or backward, making it possible to close the clamp and shears at the proper time. The slotted portion in the trip link (13417) where screw (10051) passes through it supplies the delayed knock-off action.

This simple, positive, and very flexible device has contributed much toward the successful operation of the striping attachment shown in Fig. 1.

The one important factor which must be uppermost in the machine fixer's mind when trouble develops on any striping attachment is timing. One yarn finger drops down and another raises, both must be down for a split second—that's how yarn changes are made. The yarn clamp must hold the yarn which drops in until it begins to be drawn down by the needles; if the end is released too soon, waste will begin to pile up, caused by bad yarn laps. If the end is held too long, holes will be cut in the yarn laps. Every machine fixer knows what happens when the yarn shears close before the yarn coming out enters or if the shears close too late after the yarn has entered.

And so, if you will give this matter of yarn changing on your striping attachments some serious thought, perhaps you will agree that correct timing is a very important item.

MATTHEW K. MITCHELL

(The next article, which will appear in an early issue, will continue this discussion of the third striping attachment.)

1937 Income Reports

The following report by W. M. Grosse, superintendent, Greensboro (N. C.) Full-Fashioned Hosiery Mills, as published in a recent issue of the mills' house organ, is of special interest:

THE YEAR of 1937 showed again a large increase in yearly earnings for our employees. Though the management gave a straight five per cent increase in wages during 1937, the gross earnings of our employees showed a much greater increase during 1937 than in previous years. Below are a few statistical facts about knitters earnings:

Increase noted in earnings of highest knitter in 1937 over highest knitter in 1936: Footers, $383; Day Leggers, $731; Night Leggers, $860.

Increase noted in earnings of lowest knitter in 1937 over lowest knitter in 1936: Footers, $150; Day Leggers, $123; Night Leggers, $471.

Highest increase noted of one knitter during 1937 over 1936: Footers, $760; Day Leggers, $976; Night Leggers, $953.

Lowest increase noted of one knitter during 1937 over 1936: Footers, $5.00; Day Leggers, $123; Night Leggers, $227.

The average increase of our footers for 1937 over 1936 was $405.00 and the average increase of our leggers was $370.00. Check yourself to see if your earnings averaged in these brackets.

The above figures show that every knitter increased his earnings during 1937 over 1936. The lowest increase was $5.00 for one footer and the highest increase for one knitter was $976. This increase was largely due to the knitter getting a new latest type machine. Yet one of our knitters increased his earnings during 1937 over 1936, working on the same machine during both years, to the tune of $786.00. This increase was due to increased efficiency.

The general increase was substantially greater than the five per cent increase given during 1937. The increases are attributed to the increased efficiency of the plant as a whole, in the new machinery, which we have installed, modern lighting system, much better electrical service at higher voltage through the installation of new modern transform-

ers, and also to the increased efficiency of the employees themselves.

The other departments showed a similar increase. This is not only gratifying to the employees, but also to the management as well. The management is vitally interested in its employees earnings, as increased earnings come only through increased production. Here at our plant, the management and employees have continually strived to increase production through increased efficiency, with profit to both.

Keeping Troughs Clean

EDITOR COTTON:

It seems that we are forever running into new problems and we now have one that we shall appreciate the readers of COTTON helping us with. Since throwsters are leaning more and more to the use of oils in their soaking solutions, this oil has a tendency to come off the silk while the silk is running through the moistening troughs on the full-fashioned knitting machines, causing a thick jelly accumulation on the glass floats, felts, and in the bottom of the troughs. I would like to know how I can keep the troughs, felts, and glass floats free of this excess oil.

CONTRIBUTOR NO. 6813

Model "K" Trouble

Heels and toes stick up between sinkers and dial. If you are familiar with this trouble, give this man your opinion on how to stop it . . . . . .

EDITOR COTTON:

We have Scott & Williams 3½-inch 300-needle machines on which we make a 4-thread knee-length style. The heels and toes are made of two ends of 100s/2 mercerized yarn. We are having trouble with the heels and toes sticking up between the sinkers and dial. Everything has been done to correct this trouble but we still have it—some days worse than others, according to the atmospheric conditions. A short welt is knitted on this style and we have found that by raising the dial the trouble is overcome to a certain extent, but then we cannot raise the dial so much or we will have other trouble with the makeup and transfer. We have also found that keeping the heels and toes on the tight side is helpful, but not a certain cure. Besides, when the toes stick up in the machine and it starts to knit another stocking, the dial jacks push the toe into the needles and many are broken. Our machines are equipped with steel inside sinker rings and we use the regular S & W 3759 and 3760 sinker. The makeup courses are made of 4- and 6-thread silk and the short welt is ½-inch long, being made of 6-thread silk.

We know the weight of the stocking has something to do with this trouble because we have run a 7-thread full-length style on these same machines and did not have nearly so much trouble except on damp days.

CONTRIBUTOR NO. 6802

The Maintenance and Fixing of Full-Fashioned Hosiery Machines

(Continued from page 113)

quality and the rough side placed to contact the brake drum. On this type of brake there is always the possibility of oil working in on the drum and if the smooth side of the leather is making contact there is greater chance of the brake slipping.

The draw pinion and clutch assembly should always be placed in such a position as to make plainly visible from the front of the machine the action of the clutch when it disengages during the narrowing operation. This is controlled by the proper meshing of the draw gear and pinion. Factory assembled units have the teeth of the gears center-punch marked, showing the proper point of mesh. This is done for convenience and to accelerate the assembling of the machine. Broken or worn out gears can be replaced and meshed properly and with very little difficulty. It will be noted that when the clutch disengages during the narrowing operation the coulier cam holds the draw arm in the extreme position of the stroke.

It is at this point that from the front of the machine the action of the clutch may be observed. The fixer should familiarize himself with the position of the cam at this point. When installing a new gear into place simply turn the gear-with the coulier cam attached until the cam assumes the position as previously described. Then mesh the pinion with the clutch engaged, bringing the opening point on the top or at about a 90 degree angle toward the front. The fork which holds the pinion may then be put in place and fastened, care being taken not to mesh the gears too tightly, allowing just a little tolerance to prevent excessive wear. The clutch may then be opened without danger of losing the proper point of engagement.

Last Minute Precautions

In summing up the adjustments of the coulier motion these facts may be observed: Proper equalization of the rollers for uniform lead of carriers on both left and right strokes of the machine. This is of utmost importance when the rocker motion is used. Uniformity of rockers cannot be obtained otherwise. Plaiting of the heel, sole, and toe portions becomes very difficult unless the lead is uniform.

Close setting of the rollers is necessary for maximum lead of the carriers and to prevent back-lash in the slur-bar stroke. Worn coulier cams should be re-placed as no accurate adjustment of the rollers can be made under these conditions.

The brake should be kept in good condition. Some machines are equipped with a safety stop on the draw gear which holds it stationary during the narrowing operation in addition to the brake. This is a good feature.

Coulier adjustments, like all others, require a great deal of patience and persistence on the part of the fixer and the foregoing paragraphs can only aid him to solve his own problems a little more clearly.

An Eye on the Knitting Mills

According to reports, a modern full-fashioned hosiery mill has been virtually assured for Ramseur, N. C., the mill to be operated and financed by citizens of Ramseur and Asheboro. Plans are being drawn up and it is expected that erection of the mill building will begin at an early date. Machinery will be installed during the late summer and early fall. Fine gauge hosiery will be made.

The modern full-fashioned plant of Rufus D. Wilson, Inc., Burlington, N. C., has work under way to double the size of the plant. The new addition will extend the property to a depth of about 225 feet, duplicating the completed unit in size and type of construction to every detail. When the plant is completed, 20 full-fashioned machines will be installed. Air conditioning facilities now used in the present plant will be extended to the addition.

The Erwin Manufacturing Company, Huntsville, Ala., which manufactures knitted underwear, is reported to have re-opened with one department operating. The mill has been closed most of the time since last September.

Barber Hosiery Mills, Mt. Airy, N. C., has been granted papers of incorporation, with T. C. Barber, W. F. Carter, Jr., and Wade C. Moody named as among the stockholders. Capital stock is authorized as $100,000, all of which is locally owned. The mill, which will manufacture infants' and misses' hosiery, is expected to start with not less than 100 machines.

A contract for construction of the plant of Adams-Millis Corporation, to be located at Tryon, N. C., has been granted C. M. Guest & Sons, Anderson, S. C. The building will be of latest design, in brick, concrete, and glass block windows. It will be air conditioned. The knitting department will be on the first floor and a throwing department on the second. The products will be finished in High Point. Training of the operatives will begin as soon as machinery is installed.

Construction has begun on a building for a new full-fashioned hosiery mill to be located at Randleman, N. C. The structure will be 55x112 feet one-story high and will house 8 full-fashioned hosiery machines as the initial equipment. T. L. Laughlin, High Point, N. C., is president of the concern.

Gastonia Full-Fashioned Hosiery Mills, Inc., Gastonia, N. C., will be located on a site comprising approximately 13 acres, according to Robert Jackson, secretary and treasurer of the company. H. V. Biberstein, Charlotte, N. C., has been employed to draw up plans for the new mill. The plant is expected to be of the most modern type in construction and equipment.

Danita Hosiery Mills, Philadelphia, Pa., will be moved to Newark, Del., where a building with 30,000 square feet of floor space will be built.

Douglas (Ga.) Silk Products Company, has installed 15 additional hosiery machines. The company recently finished a new addition measuring 55x230 feet.

It is reported that the Ridgeview Hosiery Mill Company, Newton, N. C., will purchase additional full-fashioned hosiery machines.

According to J. T. Anderson, industrial engineer of the Department of Conservation and Development of North Carolina, 15 new full-fashioned hosiery mills were either located in North Carolina during March, or announced plans for locating in the state. Some of these were additions to existing mills, which were classed as new units.

James F. Nields, former general manager of the Ware Valley Company, Ware, Mass., has engaged the former Otis Company office building and is expected to start operations in the manufacture of knit specialties soon.

A. R. Smith, Philadelphia, Pa., has established a new hosiery mill at Valparaiso, Fla., with an initial equipment of 8 hosiery machines. A new 5,000 square foot building has been constructed to house the plant.

Jones County Vocational School, Ellisville, Miss., now employs over 135 students to operate more than 25 hosiery machines.

P. H. Hanes Knitting Company, Winston-Salem, N. C., has installed a new winding department, 43x160 feet.

Excelsior Mills, Union, S. C., has sold its seamless machines to the newly organized Excel Hosiery Mills, but continues to operate the full-fashioned department.

Barclay Knitting Mills, Inc. have leased the two-story building at Cornell and Ten Broeck Streets, Kingston, N. Y. The company manufactures sweaters and knitted novelties.

It is reported that the town of Liberty, N. C., is assured of the establishment of a large full-fashioned hosiery mill, financed by persons in Liberty and High Point.

Plans have been made to increase the capacity of the Robert L. James & Son Hosiery Mill, Marion, N. C., by 25 per cent. The mill makes men's unfinished hosiery.

The Nahunta (Ga.) Hosiery Mills, which moved from Newark, N. J., employ about 60 persons.

Richmond Hosiery Mills, Rossville, Ga., have added two full-fashioned hosiery machines to the plant. Others will be added later, it is said.

Ridgeview Hosiery Mill, Conover, N. C., is enlarging its full-fashioned department.

The Chipman Knitting Mills, Easton, Pa., have leased the plant of the Tirrell Silk Company, Phillipsburg, N. J., following the disposal of a small unit of silk throwing machinery in the southern district.

Palmetto Hosiery Mills, Laurens, S. C., manufacturers of full-fashioned hosiery, have begun installation of new knitting machines and auxiliary equipment, costing about $125,000.

Baker-Moise Hosiery Mills, Dallas, Tex., have installed new machinery at a cost of $100,000. This includes new hosiery machines and auxiliary equipment. The company recently finished an addition costing $40,000.

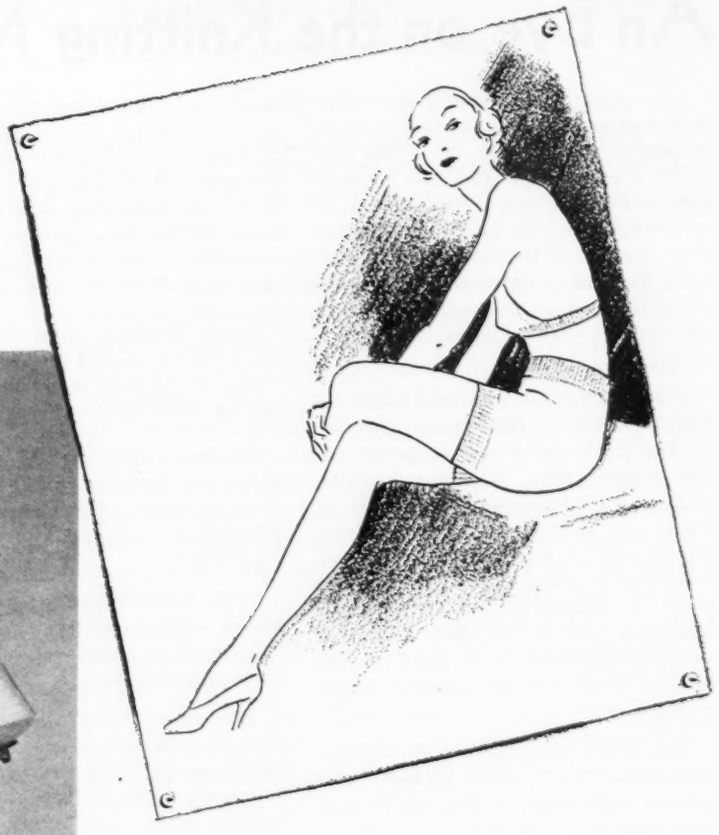
Bossong Hosiery Mills, Asheboro, N. C., have finished an expansion program which included the construction of a large addition to the main building, and other improvements. About $100,000 has been spent in the expansion program.

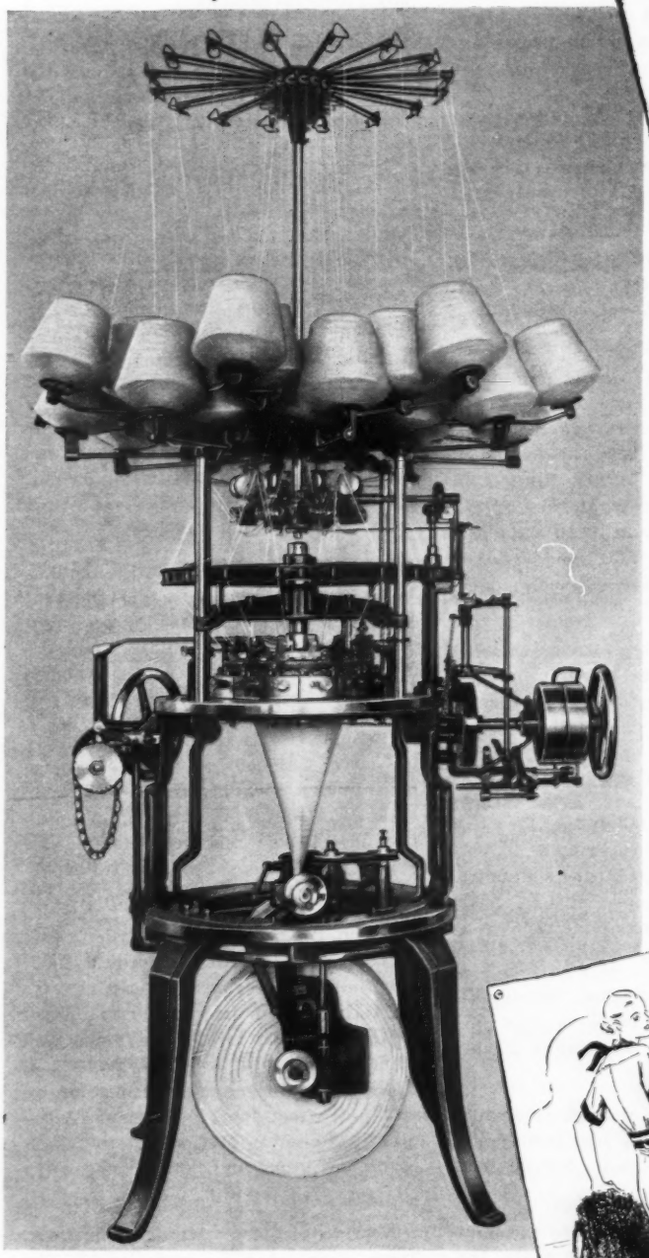
Infant Socks, Inc., has a branch factory in Eufaula, Ala., according to J. Lee Bausher, president. Machinery to start the branch has been transferred to the Alabama mill. The move was made because of overcrowded conditions, and the removal of machinery will not affect the employment of the mill in Reading, Pa., where the main plant, offices, and other necessary quarters will remain.

Norris Hosiery Mills, Cleveland, Tenn., have begun operations. The Cleveland Mills are doing the looping and finishing of the Norris goods.

Shenandoah (Va.) Knitting Mills are nearing completion. Full-fashioned hosiery will be manufactured. The construction program represents an expenditure of around $35,000.

Keeping pace with style TRENDS



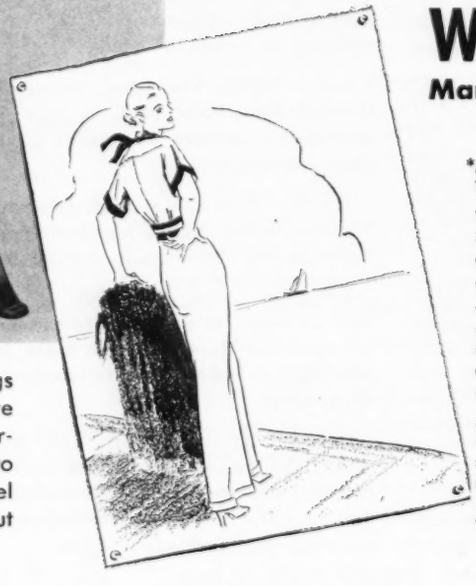


BELT-DRIVEN TAKE-UP-Ball and roller bearings used throughout, make this the most sensitive and trouble-free take-up ever built into a circular knitting machine. BELT DRIVES direct to pulley on the worm. No intermediate bevel gears or shafts. Runs almost constantly, without jerky stops and starts.

Beach wear . . . sports wear . . . lingerie . . . the market for style merchandise is ever broadening, bringing to the manufacturer new and increasing opportunities.

Manufacturers whose lines are sensitive to these trends, find in the WILDMAN Multiple Feed Rib Machine a ready ally which, because of its advanced mechanical improvements, assures a uniformly better fabric . . . and provides a most efficient means for producing these fabrics in a wide variety of designs.

It is noteworthy, too, that the WILDMAN Multiple Feed Rib Machine makes possible an almost 100% increase in production (over the 8 feed machine*), at an increased power cost of only 30%.



WILDMAN

Manufacturing Company
Norristown, Pa.

*Machines, 14" diameter are built with 16 and more feeds.

YARN FED UNDER TENSION—Furnishing wheels keep stitches even, and garment of uniform length.

YARN CARRIER swings out for easy threading. Never necessary to stop machines to put on new cones. The bobbin stand on the 16 feed machines carries 32 cones. The start of one cone may be tied to the end of another.

AMONG OTHER IMPORTANT FEATURES are, 50% saving in floor space; Gear driven dial to prevent pinching; finished fabric winds under uniform tension on roll swinging out for easy handling.

Descriptive literature explains many other Wildman features.

TRENDS and HIGHLIGHTS of the KNIT GOODS MARKETS

Hosiery Mill Operations Better Than in Underwear Industry. Knit Goods Prices Generally Unchanged. Polo Shirts in Good Demand. Outerwear Quiet. Men's Knitted Shorts Active.

Philadelphia, May 16, 1938.

PRODUCTION OF WOMEN'S FULL-FASHIONED HOSIERY has held up remarkably well so far this year as compared with the same period in 1937 and predictions have been made that 1938 will see a new production record in such goods. Demand for women's seamless has been relatively good but that of anklets and children's numbers has been poor when compared with last year. Shipments of men's cotton half-hose has been a bright spot, shipments of such lines recently being 20 per cent larger than a year previous. Underwear interest has been unsatisfactory but warm weather has brushed up interest in lightweights while fall buying has yet to come to any worth while volume even though reports are in the market that some large retail groups are about ready to begin purchasing. Stocks of underwear have been worked down appreciably but some in the market still have more to do in this connection which may delay development of fall lines.

Full-Fashioned

Although there are frequent reports of a reduction in branded full-fashioned hosiery, following the Easter business, these have not come yet and most in the market are dubious they will while those looking for them admit they would be very small if they did come. Branded manufacturers in general did a very nice volume of business for Easter and some said they had two very good months, March and April due to the late Easter. They did not make much money on it but many mills were busy for several weeks on this type business. Since then demand has been quiet again and this is expected to continue until fall buying starts when another good season so far as volume goes, is expected. Very quiet demand exists for full-fashioned knee-lengths which is probably due to the shorter skirts this year. Retail prices of full-fashioned have been steady with 79 cent numbers going well. Manufacturers say with high taxes and high overhead they cannot reduce prices unless quality is cut.

Anklets

There has been a pickup in demand for anklets coming late in the season but to date volume in numbers of this kind has been small compared with the same period in 1937. In the first three months of this year shipments were 6.3 per cent under those of the same quarter of 1937 but this decrease is small compared with the drop of 33 per cent in the same period in children's and infants' hosiery. Jobbers say retailers this season want a cheap anklet in more cases than last year which they say is to satisfy a consumer demand. This type merchandise is expected to pick up much more once warm weather gets here and delayed buying by retailers makes its appearance. There is evidence among some knitters right now this is here, a demand that is also affecting mercerizers of yarns who report larger shipments on old yarn contracts. There are no new style trends in consumer demand of these lines so far this season and both turndown and straight cuff numbers are selling, with mercerized in the lead.

Women's Seamless

Demand for women's seamless hosiery so far this year has held up better than any branch of the hosiery industry except women's full-fashioned. In March shipments of seamless were 6.7 per cent larger than the same 1937 month showing the largest percentage gain for that comparison of any branch of the industry. Both silk and rayon seamless has been selling but jobbers report that silk is making the best progress because cheap prices on this type are being named and yet the hosiery is well-made. Several jobbers have seamless that has a mock seam so that it resembles full-fashioned more closely than in the past and others have seamless in novelty lines which are wanted. Colored seams and toes are going well in several sections of the country. Seamless silks to retail around 35 cents per pair have been going well even though the chain stores feature them at around 25 cents.

Underwear

Aside from a real spurt in men's knit brief shorts and a run on polo shirts so far as certain knitters here are concerned the underwear section has been dull and disappointing. There has been less interest in fall up to the present than was expected even with general conditions what they are. The popularity of the knitted brief short for men probably means that some of this business is being booked at the expense of the woven shorts. The spurt in knitted polos is pleasing in view of the market opinion expressed earlier this year that woven garments would cut into this market this year. It has not come that way at all. Volume in men's athletic shirts has not been up to expectations. Demand for spring underwear is perking up a bit but trading is not brisk.

Men's Half-Hose

Although volume in men's half-hose has been averaging 13 per cent under this time last year in recent weeks this branch of the industry has been improving above the general average. There has been a good call for the short socks called slacks which men like for warm weather wear and jobbers in some cases say about half of their present retail orders call for this short type hose. There was a very poor season in men's wool hose during the last season so that much of this type merchandise will have to be carried over to next winter. Many retailers allowed their spring stocks of men's numbers to get low and as warm weather has come these retailers have placed orders with jobbers and they in

turn have re-ordered from knitters giving the market a better but not active appearance. Prices of men's lines while not strong have been unchanged with retailers reporting relatively less interest in expensive lines this year due to general conditions.

◆

Appeal Heard in "Ringless" Hosiery Case

The appeal of Julius Kayser & Co. and Textile Patents Corp. to upset the decision of Federal Judge Oliver B. Dickinson rendered against them April 12, 1937, in the United States District Court in Philadelphia in their "ringless" hosiery patent litigation with Rosedale Knitting Co. of Reading, was argued before the United States Circuit Court of Appeals in the same city May 6. Last year Judge Dickinson ruled that Charles Kaufman's patent for a three-carrier attachment to knitting machines to make "ringless" hosiery is invalid because Kaufman is not the "original inventor", though he did not decide who is the real inventor. Judges Joseph Buffington, J. Warren Davis and John Biggs, Jr. who heard the appeal arguments, took the matter under consideration and it was indicated by court attaches that it might be several months before their decision in the hosiery case is announced.

Former Federal Judge Hugh M. Morris, chief counsel for Kayser and Textile Patents, presented vigorous argument that the patent is valid, saying the "magic hand of Kaufman did the trick" of eliminating of bands and rings from hosiery and asserted that every experiment in this direction had failed up to the time Kaufman hit upon the three-carrier idea. Judge Morris produced a copy of a Rosedale advertisement of 1933, in which he said that company boasted of having produced a "ringless" stocking with rayon, declaring that the same results could not be obtained by the use of pure silk. Asserting this was two years after Kaufman's application, he argued the Rosedale company is not contending that it was common knowledge years ago that the three-carrier system was effective.

Samuel E. Darby, Jr., of New York, one of Rosedale's attorneys made the chief argument to uphold the Dickinson decision. Darby averred that Kaufman was not only not the first inventor but there were seven others, he said, but had not even thought of the three-carrier idea until it was suggested to him by a machine designer for the Berkshire Knitting Mills. Kaufman's original was for four carriers, according to Darby, but Mutchler, this machine designer, said this could not be done without an entirely new machine being designed and suggested that three carriers be tried. Darby also brought into the hearing further details of the reputed patent pool of 1933, under which he said the other seven inventors, including Krenkel and Lund yielded their claims and agreed to "recognize" Kaufman as the "first original inventor", so that they could share in the 5-cent per dozen royalty to those in the syndicate and 10 cents from those on the "outside".

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First Quarter Hosiery Shipments Drop 10 Per Cent

Shipments of hosiery of all types for the first three months of this year were 9.5 per cent smaller than the same period in 1937, being 30,649,439 dozen pairs compared with 33,873,880 for the first three months of 1937. The best showing in this regard was made by women's full-fashioned in which there was a decline of only 0.1 per cent, these shipments being 9,538,374 compared with 9,544,638 in the corresponding period in 1937. Aside from sharp declines in shipments of cotton bundle goods, ribbed goods and woolen goods, in which declines ranging from 33 to 37 per cent were registered, the branch of the hosiery industry which showed the most drastic decline for the three-month period was children's and infants' hosiery, in which shipments were 33 per cent smaller than a year ago. A fair record in this connection was turned in by women's seamless manufacturers whose shipments the first three months were only 4.1 per cent under the same period of the previous year, while shipments of anklets registered a drop of 6.3 per cent.

Shipments of all types of hosiery in March, according to a survey made by the National Association of Hosiery Manufacturers were only 3.8 per cent below those of the corresponding month last year and that month's shipments of women's full-fashioned and seamless silk hosiery and of men's cotton half-hose were actually larger than those of March of last year. March shipments of women's full-fashioned goods were 6.2 per cent ahead of those of the corresponding month of last year and were the largest March shipments of this type of hosiery in the history of the industry. March shipments of women's silk seamless hosiery were 14.5 per cent greater in March than in the same month last year, while those of cotton half-hose were up 20 per cent on the same basis.

These statistics, particularly as they relate to shipments of women's full-fashioned goods, bring to mind the statement of William H. Gosch, who this year completed his three-year term as president of the National Association of Hosiery Manufacturers. It was Mr. Gosch's opinion that the 1938 production of women's full-fashioned hosiery would probably show a record total of 40,000,000 dozens or over compared with 30,000,000 in 1929, the peak year in spending. He gave as the reason for this growth, the trend toward lighter weight merchandise, sheerer, and from the standpoint of color and fashion, more beautiful than ever. His prediction is confirmed by retailers who state that proportionately they are selling much larger amounts of 2-thread stockings than ever before in their history and it is generally recognized that while such sheer hosiery presents a very attractive appearance, its sheerness is not conducive to as long wear as stockings of sturdier construction.

◆

Hosiery Union Maps Southern Campaign

The first convention to be held in the South by the American Federation of Hosiery Workers, which was held in Charlotte, N. C., closed May 11, with indications that a southern campaign for organizing the hosiery workers will begin at once. Officials said the federation will shift the leaders in its work to the South and these leaders will educate Southerners to become organizers. The drive, it was estimated, will cost approximately $1,000,000. Slightly more than 200 delegates from 40 states attended. Emil Reeve, who was re-elected president by an overwhelming vote, said that holding the convention in Charlotte was symbolic of the union's determination to establish in southern hosiery mills the same standards now prevailing in the northern section of the industry, which he said is 90 per cent unionized.

One of the most important steps taken by the convention was ratification of the policy, permitting the signing of individual group or district agreements to be determined by the National Executive Board with the approval of the workers employed under such agreements. It was also voted that the National Executive Board should have the authority to negotiate any agreement up to a three-year period to be ratified by a referendum ballot of the membership. This does not mean that one agreement will run for one year,

another two years and yet another three years. The board will have to determine the length of the agreement and then adopt a uniform policy in all agreements, keeping the expiration date of them the same. In bringing this resolution to a vote, President Reeve pointed out no successful organization in the United States was operating on a one-year agreement and that the Amalgamated Clothing Workers, United Mine Workers and the International Typographical Union had all adopted a longer period of agreements.

Reports indicated that in the past year the number of agreements between manufacturers and the American Federation of Hosiery Workers had grown from 59 to 208 and 66.5 per cent of the full-fashioned industry was now under contract with the union. "It is primarily the South that remains to be brought under agreement", President Reeve insisted. An inventory of the union agreements with full-fashioned hosiery manufacturers as reported to the convention disclosed the following: Operating under full union rate, 6,588 machines, or 43.5 per cent; operating under the Reading rate, 2,384 machines, 15.7 per cent; operating below union rate, 1,146 machines, 7.3 per cent; total machines in industry as of January 1, 1938, the date this survey was made, 15,119; on March 1, 1938, there were 8,969 machines operating under full union rates.

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FORECAST

(Opinion offered by COTTON'S market correspondent)

Philadelphia, May 16, 1938

With textile activity and selling at such extremely low levels as witnessed in recent weeks in most branches of the industry, there is much looking head by the trade now to the fall. It is now asked "What are the chances of better conditions for the coming season?" which normally is a better one for some trades than spring. There are few if any signs of improvement generally in the whole business picture now but in many past cycles textile upturn took place several months before general business.

In view of this some experts foresee improvement in general business late this year but they feel that textiles will be feeling the effects of better demand earlier, say around Labor Day. This prediction is based upon the long period of liquidation of textiles and the realization that stocks of these lines have generally been worked down to a level where consumer demands, even now, mean that more replacements must follow. In other words even replacement of consumer goods such as textiles for clothing is now going to be sufficient to cause some betterment in mill and wholesale activity.

While there is nothing in sight at present to cause the slightest worry on this score now it is only fair to point out that buyers of all types of merchandise can withhold purchases to as much injury to themselves as too heavy buying did a year or more ago.

Textile raw materials, cotton, wool and silk have not changed materially over the month and aside from some easing in the first there has been nothing to change the previous opinion that bottom in these has already been touched and a steady tone is here which even the present dullness has been unable to damage much, the only easing being in raw cotton.

With this as a base and with mill operations especially among underwear knitters so low, making overhead high, then it is illogical to expect much lower goods prices and if betterment comes then buyers could look for a rather sharp upward revision in quotations of many lines. This would be a move by manufacturers and spinners to place their business on a profitable basis again after current loss selling by many.

This means no important price change in yarns or goods over the near future, except for scattered and isolated instances such as the present easing in rayon knitting cones. Manufacturers can safely buy a short time ahead but they should not load up far into the future. They should not make up stocks of merchandise except in very staple types and then only reasonably because of the indefiniteness of the dull period.

Most lines of knit goods cannot go lower in price by any wide margin. Manufacturers have priced fall goods low even on the basis of low yarn or commodity rates so that wholesalers and retailers can operate in fall textiles with a fair degree of confidence that they could not lose on such items over the coming months. If business changes for the better present commitments could prove very profitable investments. Yet the upturn when it does come is not so apt to be violent as it is going to be a hard pull back to anything approaching normal, the depth of the so-called "recession" making that a certainty.

Sharp Decline in Jap Hosiery Imports

From a high of 26 per cent of the production of comparable hosiery made in this country in the final quarter of 1936, imports of Japanese cotton hosiery have steadily declined to less than 5 per cent in the first quarter of this year. The National Association of Hosiery Manufacturers states that production of men's cotton half-hose in this country for the last quarter of 1936 amounted to 4,954,000 dozens. Of this amount 2,598,000 dozen were comparable to Japanese types and the imports of the latter for the period were 679,000 dozens. This represented a proportion of 26.13 per cent. In the first quarter of this year, with the production of men's cotton half-hose in this country at 3,634,000 dozens and 1,806,000 dozens of the same comparable to Japanese-made goods, the imports of the latter were but 88,539 dozens or only 4.9 per cent. The decline in competition from Japan is obvious from these figures.

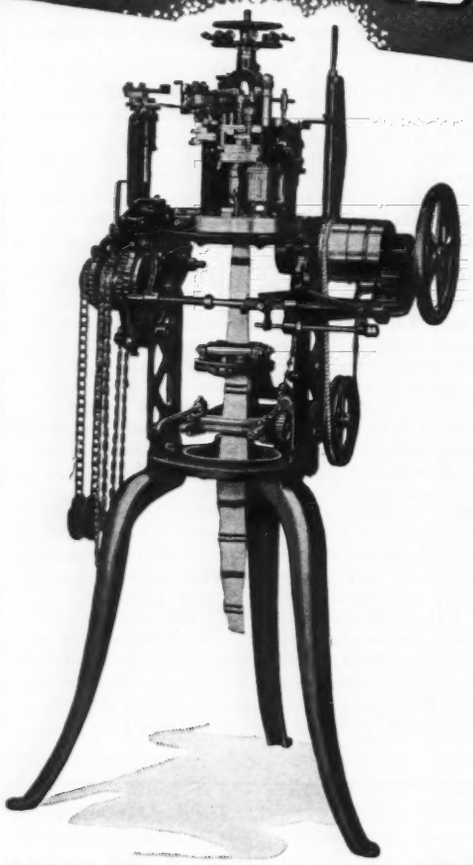
Part of this decline is due to the hosiery quota agreement between the National Association of Hosiery Manufacturers and the Japanese Knitted Goods Exporters Association, entered into in April of 1937. This agreement covers the three years of 1937, 1938 and 1939. An annual quota of 1,500,000 dozen pairs was specified, the agreement covering cotton, rayon, or cotton-rayon hosiery of all types. The quota agreement reduced imports of cotton hosiery from Japan considerably below the level established during the closing quarter of 1936. The further decline since the third quarter of 1937 reflects the military activities in which Japan has been engaged, as well as the curtailed demand for cotton half-hose growing out of the current depression in business.

Penna. Produced 51 Per Cent of FF Hosiery

Although the southern states now have one-fourth of the nation's full-fashioned knitting machinery, an increase of about 7 per cent over 1936, Pennsylvania continues to lead in the production of women's full-fashioned stockings with 51.1 per cent of the total production. This was brought out in the tenth annual statistical survey of this branch of the industry for the year 1937, issued by Textile Machine Works of Reading, Pa. This survey estimates the value of 1937 shipments as $238,000,000, which represented 74.4 per cent of the total value of all kinds of hosiery.

While Philadelphia was losing 700 machines, moved to other locations, new mills established in the South accounted for 280 machines that moved into that territory. Mississippi took the most, 23 per cent, and was followed by North Carolina, 21 per cent; Virginia, 14 per cent; Tennessee, 14

Brinton Ribbers



Rubber Lay-In
Picot Edge
3 & 4 Color Yarn Changes

Rack Welt
Mesh Designs
3 & 4 Feed Machines

Let the new, modern Brinton Ribbers carry the burden of your production problems. Modernize your old ribbers, by converting to the latest styles. . . . For dependable, economical production—rely on Brintons.

Full particulars on request

BRINTON CIRCULAR KNITTING MACHINES

3700 KENSINGTON AVENUE
Philadelphia, Pa.

NEW 2¼ lb. cones evenly dyed in single packages for Knitters

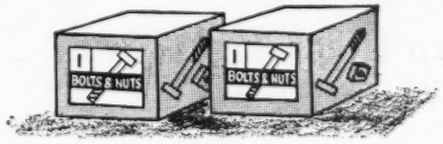
HIGHEST QUALITY KNITTING YARNS
COMBED PEELER THREAD YARNS
Bleached Colored Yarns
Yarns
SUPER CARDED YARNS
LOLA MILLS, INC. STANLEY, N.C.

KNITTING and WEAVING YARNS
12s To 45s SINGLE AND PLY
Package Dyeing
Cones or Tubes—also

PIONEERS IN BEAM DYEING

BLEACHED BOTTOM YARNS A SPECIALTY

LOLA MILLS, Inc.
STANLEY, N. C.



Bolts and Nuts to You
But More Wind In the *Sales*

Remember the cracker box and sugar barrel days when most commodities were bought in bulk? Now even carpet tacks, bolts and nuts are sold in individual packages. This is being done to identify a line of products heretofore unbranded, and to produce more sales.

So no matter what product you have, we can suggest ways of novel and distinctive packaging or we can take your present package and, we believe, increase its attractiveness and *sales effectiveness*. Or if you have several packages, we can *match them*, thereby co-ordinating the style, theme and color scheme and unifying the impressions to be conveyed to the public through a family resemblance.

Designs for our "CO-ORDINATED PACKAGING" or individual packages will be submitted in the way of folding and set-up boxes, cartons, counter and window displays, shipping containers, etc. *When it comes to packaging, come to Old Dominion.*

OLD DOMINION BOX CO., Inc.
LYNCHBURG, VIRGINIA

Winston-Salem, N. C. Martinsville, Va. | Burlington, N. C. Charlotte, N. C. | Asheboro, N. C. Kinston, N. C.

Old Dominion Paper Boxes

per cent; Kentucky, 11 per cent; Georgia, 7 per cent; and Maryland 4 per cent. Florida and Alabama each accounted for 3 per cent. New machine installations favored the 24-section, 45-gauge type and more recently the 26-section, 45- and 51-gauge types, as of March, 1938, there were 15,751 full-fashioned knitting machines in place, located as follows:

Philadelphia	2,814
Other Pennsylvania	5,093
Western States	2,097
N. E., N. Y., N. J., and Del.	1,775
North Carolina	2,060
Other Southern States	1,912

◆

Hosiery Union Files Plea to Dismiss Suit

The hosiery workers' union, late last month, made its first move in the $3,515,872 suit filed against it recently by Apex Hosiery Co. for the damage to its plant during the labor trouble last spring. A motion to the United States District Court in Philadelphia was filed to dismiss the suit on the ground it fails to show a cause of action under the Clayton Anti-Trust Act and is contrary to the Norris-LaGuardia law of March 23, 1932. William Leader, president of the Philadelphia Local, made the motion through his counsel M. Herbert Syme, and at the same time reserved the right to file an answer to the merits of the company's claim in the event the court declines to throw out the case. No date was set for a hearing on the motion. It maintains that the statement of claim fails to "allege a violation of said act", despite the allegations of the plaintiff that its business was completely tied up. The union claims the suit should be dismissed, for this reason, and also because Apex does not show the "agency" of the union which is essential to hold its responsible for their actions.

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Philadelphia's Mayor and Sheriff Named Joint Apex Defendants

Mayor S. Davis Wilson and Sheriff William J. Hamilton, Jr., must explain to a jury their alleged dereliction in not properly policing the plant of the Apex Hosiery Company last year to prevent strike damage estimated at more than $1,000,000. An order was handed down May 6 by Judge Curtis Bok, dismissing questions of law raised by the Mayor and Sheriff in efforts to evade writs bringing them into the case as joint defendants along with the county commissioners. The hosiery company, at whose plant a sit-down strike took place last May, brought suit under an act passed in 1841, providing cause for action against the commissioners by any property holder able to prove loss because of the commission's dereliction of duty. Next, the commission sought to bring into the suit as joint defendants, the Mayor, Sheriff, the Director of Public Safety and William M. Leader, president of the Philadelphia Local of the Hosiery Union.

Wilson and Hamilton each sought, through counsel, to place the blame on the other for responsibility in policing the plant, while counsel for the hosiery union sought to prove that this would infringe on labor's rights recently guaranteed by federal and state legislation. Judge Bok's ruling, however, included the union officials as defendants. Supplemental affidavits by the new defendants were ordered within 15 days, after which the case will go to trial in a Philadelphia Common Pleas Court.

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Propper-McCallum Closes Plant

The trustees of the Propper-McCallum Hosiery Co., following a wage dispute on May 9, closed the plant at Northampton, Mass., throwing about 1,000 employees out of work. The trustees who were appointed last December when the company reorganized under Section 77-B of the Federal Bankruptcy Act charged that the American Federation of Hosiery Workers had violated wage agreements by refusing to accept a general wage cut. Union leaders said that the company's employees took a voluntary 12½ per cent cut in connection with the reorganization and contended that it was therefore unfair to impose upon the men the reduction which the union recently accepted in other parts of the industry.

◆

Ajax Mills Deny Insolvency Charge

A vigorous denial that it is insolvent and assertions that it has set-offs and counter claims for more than $1,000,000 against Vertex Hosiery Mills, Inc., of Allentown, was made by the Ajax Hosiery Mills in an answer filed in the Philadelphia District Court. This answer indicates the firm is going to make a vigorous fight against efforts of Vertex's 77-B trustees to have it declared bankrupt. Ajax's answer not only denies insolvency but admits that the claims of Vertex are $46,000 more than the amount the trustees set forth in their petition against Ajax. Authority to file involuntary bankruptcy proceedings against Ajax Hosiery Mills or to join with other credits in such a proceeding, when they obtain sufficient proof of insolvency, was given previously to the trustees for Vertex Hosiery Mills by Federal Judge William H. Kirkpatrick at Philadelphia. In a petition to the court the trustees averred that Ajax owes Vertex $822,954.

◆

Meinig Hosiery Co. May Be Liquidated

Referee John H. Bridenbaugh of Reading, Pa., as special master in the 77-B reorganization proceedings of Meinig Hosiery Co. stated early this month that parties interested in the affairs of the company have until June 4 to file a reorganization plan to continue the business and if no plan is submitted by that time the plant will be liquidated. The referee stated he will file a report of his findings with the District Court at Philadelphia. Testimony at a hearing developed that liabilities amounted to $1,341,345, while appraised value of assets was given as $300,564. The company has 120 machines of 18-section, 42-gauge leggers and footers, about 10 years old of the low-speed type. It was stated to one creditor that the appraised value of the machinery was $75,617.

◆

Knitting Machinery Exports

The value of knitting machinery exported from the U. S. during 1937 was given as $1,940,463 by the Department of Commerce. Exports of full-fashioned knitting machines accounted for $159,103, of which more than half went to Japan, while the United Kingdom was the second largest purchaser. The value of circular hosiery knitting machines shipped abroad during the year amounted to $511,534, with the largest amounts going to the United Kingdom and Canada. In all, 29 foreign countries bought circular knitting machines from the United States during 1937.

◆

Knee Lengths

Shorter skirts this year are mentioned in some quarters as a possible retarding influence on knee-length hosiery sales so far this season. Notwith-

39,000,000 "Glamour Girls"

The Market "DURABOND" Can Help You Sell!

Thirty-nine million or so customers — fashion conscious, yet budget wise. Each seeking hosiery flattering, sheer and glamorous — yet wanting the wearing qualities of service weights.

That's your market — and now you can meet its demands.

DuraBond **Finishing dulls, softens the texture — makes hosiery seem more sheer. Hosiery *DuraBond* Finished is flattering, glamorous, easy to sell.**

DuraBond **Finishing puts extra wear in every pair — minimizes pulls and runs and water spots. This "film of protection" is in for the life of the fabric and withstands innumerable washings.**

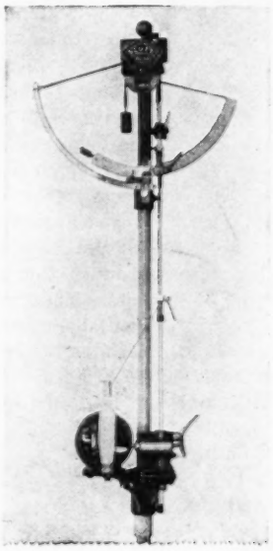
DuraBond **Finishing gives real selling power . . . and it's used today to make more sales, more rapidly on over 75% of all quality hosiery for women.**

Dura Bond
HOSIERY FINISHES

SCHOLLER BROS., INC.

MANUFACTURERS OF TEXTILE SOAPS, SOFTENERS, OILS, FINISHES
COLLINS & WESTMORELAND STS., PHILA., PA.—ST. CATHARINES, ONT., CAN.

Want to know more about your knitting yarns?



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standing this trend, many retailers are selling a fair amount of such merchandise at present through promotional efforts and report that sales have been increased in certain classes of consumers. One of the best buyers of women's hosiery is the business girl, who has established herself as a ready market for comfort and coolness in dress when the thermometer is high. Other girls and women whose daily work entails activity, including nurses, factory workers and housewives are potential knee-length customers.

◆

Trend to Sheerer Hosiery

The marked trend of the sheerer number of women's full-fashioned silk hosiery has been emphasized by the National Association of Hosiery Manufacturers. Almost three-quarters of the March production of full-fashioned hosiery was made in three constructions, namely, 45-gauge with three or less threads, 42-gauge with three threads and 42-gauge with four threads. A table prepared in this report shows that while in April 1937 the 45-gauge, 3-thread or less construction accounted for only 17.8 per cent of the total reported production, while in March of this year it accounted for as much as 25.1 per cent. The same report emphasizes smaller shipments in March of the knee-length full-fashioned, being 123,513 dozens this March compared with 280,792 a year ago. The falling off in seamless knee-length shipments was less than in full-fashioned.

◆

Prominent Outerwear Official Resigns

Daniel F. Byrnes, widely known in the knitted outerwear industry, former president of the National Knitted Outerwear Association, and prominent in the National Association of Hosiery Manufacturers, announced his resignation effective April 30 as vice-president of the Bradley Knitting Co. of Milwaukee and general manager of production at the Bradley plant at Delavan, Wis., and the National Knitting Co., a Milwaukee subsidiary. Mr. Byrnes will remain a member of the board of directors of the company for the present. He started in the knitted outerwear business 33 years ago and joined the Bradley organization 28 years ago. Prominently identified with the knitted outerwear business, Mr. Byrnes is widely known in the knitted and allied trades in all sections of the United States.

Hosiery Trade Favors Yearly Exhibition

Although resolutions against the Knitting Arts Show next year and holding the event every other year had been passed by the Knitting Machine Manufacturers' Association and the Knitting Machine Needle Manufacturers' Association, the Board of Directors of the hosiery manufacturers association to whom this suggestion was addressed, has gone to record unanimously against altering the present plan of annual exhibitions, according to Earl Constantine, president of the hosiery group. Mr. Constantine said that an undertaking such as the annual Philadelphia machinery show could not well be run in alternate years because interest lags during the two-year interval and he stated, the machinery men have already been advised of the hosiery board's decision.

◆

Elastic Patents Co. Names Mills Licensed Under Davis Patents

It was announced the middle of this month that 60 manufacturers have signed contracts up to that date with Elastic Patents Co., agreeing to pay royalties of half a cent per dozen for the right to make seamless hosiery with elastic tops in accordance with patents granted last year to Robert E. Davis. Most of the mills are southern producers of men's and children's goods. The patents are: 2,038,900, 2,089,879 and 2,089,880. Elastic Patents is the licensor firm. Mr. Davis is the head of W. B. Davis & Son, Fort Payne, Ala.

◆

Prestomark—New Labeling Method

Kaumagraph Company, 200 Varick St., New York City, has announced that *Prestomark* and the machine for application are now available. *Prestomark* is a printed or lithographed label on thin fabric so treated that when applied with heat to any kind of garment, any article of underwear, or any type of texture, it adheres for the life of the merchandise. It is said to eliminate sewing on labels and provides complete and permanent identification. Because *Prestomark* is lithographed or printed, any number of colors may be used. Economy of production makes it possible for manufacturers to have on hand labels of any variety of styles, sizes, and fiber identification. Economy and practicability of use has been accomplished in co-operation with the Textile Machine Works, Reading, Pa., whose automatic machine for *Prestomark* application was demonstrated at the Knitting Show in Philadelphia this year. This machine has a magazine which automatically feeds cartridges of labels to the article to be identified, provides the proper amount of heat, dwell, and pressure for permanent adherence. Application is rapid and is easily handled by the average textile worker. The magazines are available to accommodate any size marking and the various sizes are interchangeable.

◆

Geisberg Receives Honor Medal

Harry Geisberg was awarded the National Association of Cotton Manufacturers Honor Medal given to the student making the highest scholastic record in textiles. Mr. Geisberg was on the Honor Roll all four years at Clemson. He made an unusually fine scholastic record. Clemson Commencement Exercises were held from May 29-31. This medal was presented at noon on May 31, by Dr. E. W. Sikes, President of Clemson College. Mr. Geisberg was a captain in the cadet corps and was Secretary-Treasurer of Phi Psi, honorary textile fraternity. During his four years at Clemson he did considerable work earning money for part of his expenses. Mr. Geisberg was born in Anderson, S. C. After finishing high school in Anderson, he came to Clemson to major in Textile Engineering.

◆

Corrosion-Resistant Coating

American Concrete & Steel Pipe Company, 4635 Firestone Boulevard, South Gate (Los Angeles County), Cal., has perfected Amercoat rapid-dry coating. It differs from Amercoat enamel and plastic in that it is not particularly designed to resist erosion and abrasion as well as corrosion. It is a quick-drying solution which may be applied with a paint brush or with paint spray equipment to form a protective covering for exterior and a lining for interior surfaces that are subjected to the corrosive action of liquids, gases, or solids. It is sold ready-mixed for application and its coverage is said to be from 200 to 250 square feet per gallon.

◆

Knit Products Corporation, Belmont, N. C., will install 50 additional hosiery machines and auxiliary equipment in a new addition to the plant.

Pool Manufacturing Company, Sherman, Tex., has started an equipment modernization program with the installation of 13 Union Special machines.

TRENDS—THE YARN MARKETS

Dullness in Yarn Markets with Prices Displaying Little Change. Rayon Knitting Cones Cut But Weaving Unchanged. Cotton Yarn Spinners Curtail Drastically.

Philadelphia, May 16, 1938.

ALL YARNS have been quiet this month and prices unchanged except for minor easing in the quiet cotton yarn market and for a cut in rayon oiled knitting cones due to a special situation. At present there are no indications this knitting yarn cut is going to spread into other rayon yarns so that the previous opinion rayon yarns will not go lower still stands. Losses of producers the first 1938 quarter make this almost a certainty unless trade warfare breaks out anew. In worsted yarns prices have been unchanged and somewhat more business has been done, largely protective buying for early fall goods orders. In silk, hand-to-mouth buying is in order with total volume under that of last month because of a seasonal let-down by full-fashioned mills which, however, feel that another upturn will come when initial fall orders are placed.

Cotton Yarns

Prices have eased slightly in carded and combed yarns over the month while no change has occurred in mercerized. Raw cotton has declined approximately ¼ cent, which is approximately the extent that yarn prices have declined in the same period. These prices generally reflect a loss to spinners of about two cents per pound. New business has been at an extremely low level and curtailment among spinners has been more severe than seen in several years, many of the carded group operating only a couple of days a week while in many other instances such plants have closed down entirely until demand improves and it is again possible to sell on a profitable basis. Combed spinners have been running at about half-time rates in the cases of the larger groups while a lower rate than this has been in evidence among many of the smaller producers. Keen competition for the limited amount of business passing has developed prices within the last few days which are as low as any seen this or last year. As an example of this there have been numerous sales of 20s two-ply at 19 cents for an average quality which is as low as this count reached last November, the low point of 1937.

A similar situation exists in carded knitting yarns where average grade has sold as low as 15½ cents basis 10s, which is as low or a fraction lower than the same yarn reached last November. From the spinners' point of view, current prices are at least a cent worse than they were at that time because raw cotton is now approximately 1 cent higher than it was last November. While combed qualities have been holding steadier than carded within the last two weeks additional weakness has developed, particularly in single yarns and here too prices as low as any reached within the last year have been noted in a few sales. Sellers report that no large poundage is obtainable no matter how low they quote. Sales of 30s single combed have been reported as low as 27½ cents which is 1½ cents lower than most spinners quote and about 2½ cents under what some spinners say they should be obtaining for this type yarn.

While new business in mercerized yarns has been very small, there has been a very noticeable improvement in the shipment of such yarns on old contracts. This reflects a replacement of stocks all down the line from retailers to manufacturers, so that from now on spinners are more apt to receive any benefit from replacements of retail stocks. Prices of mercerized have not changed and remain on the basis of 63 cents for 60s two-ply.

Silk

Prices of raw silk have not changed materially over the month but have been a shade easier. Prices now are about mid-way between the 1938 high, which was reached early in March, and the low which was touched the first week of the year. Crack double extra silk, which at the time of writing is quoted at $1.61 to $1.66, reached a high of $1.74 in March compared with a low this year of $1.53 early in January. Buying by the whole trade continues to be on a strict hand-to-mouth basis but weavers in most instances are placing orders for delivery three to four weeks ahead. The statistics show that mill takings during April amounted to 33,831 bales, of which 30,483 bales were from Japan, 260 bales from Shanghai and 2,638 from Italy. Takings of Italian silk last month were again relatively larger due to the scarcity in yellow 20-22s Japans.

Stocks in warehouses increased about 5,000 bales over the month due to imports of 38,500 bales as against takings of 33,400 bales. Holdings on the first of May amounted to 41,455 bales, a contra-seasonal gain because warehouse stocks usually decline from March through June. Indications are that imports during May will be small, not much over 26,000 to 27,000 bales, unless exporting increases late in May from Japan. Under these conditions, the trade is paying more and more attention to Japan's economic position and the outlook for the yen. There is apparently an increasing doubt concerning Japan's fiscal position and the ultimate value of the yen which of course has a direct bearing on the value of raw silk. While any impairment in the value of the yen would lead to an inflationary upturn in silk values in Japan, the external value of raw silk would become extremely uncertain.

Worsted Yarns

There has been no spring season of importance in worsted outerwear and the 1938 bathing suit season in such lines is estimated to be only about 25 or 30 per cent of normal. Under these conditions demand for worsted yarns has been generally quiet although there was a flurry of buying late in April, when a number of the larger spinners temporarily cut prices in order to get some business to run on. At that time 2-20s, 50s Bradford sold down to 85 cents compared with the current price of 90 cents, while 1-18s, 50s dyed on cones sold down to $1.00 compared with $1.05 to $1.07½ asked by other spinners. Outerwear manufacturers have been experiencing a very dull period for about a year and there are some indications now that the fall will see a change in the situation and a generally more active situation is expected largely on account of working down of inventories.

Rayon

With demand continuing quiet and prices generally unchanged, attention was centered four days ago on the reports in the market that one of the largest producers was quoting 47 cents for 150 denier dull knitting cones and thereby meeting yarn prices and fabric quotations based upon them which had existed for some time previously. After the series of price cuts at the beginning of this year, there developed a 150 denier knitting yarn price of 52 cents. The price for plain and fancy knit fabric based on this was 68 cents. However, this price soon dropped to 63 cents, indicating a yarn price of 47 cents. Those producers who had held to the 52-cent price did not book any business and the recent cut by several was to meet this type competition. Most in the trade do not expect this to carry over into a reduction in weaving yarns at this time.

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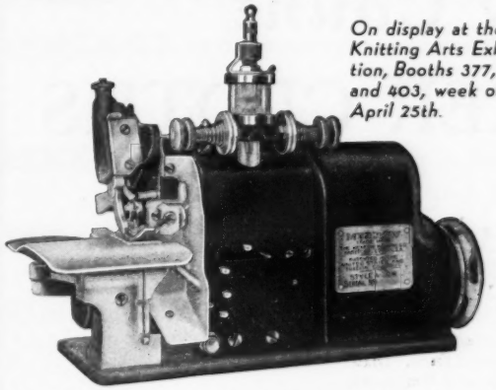

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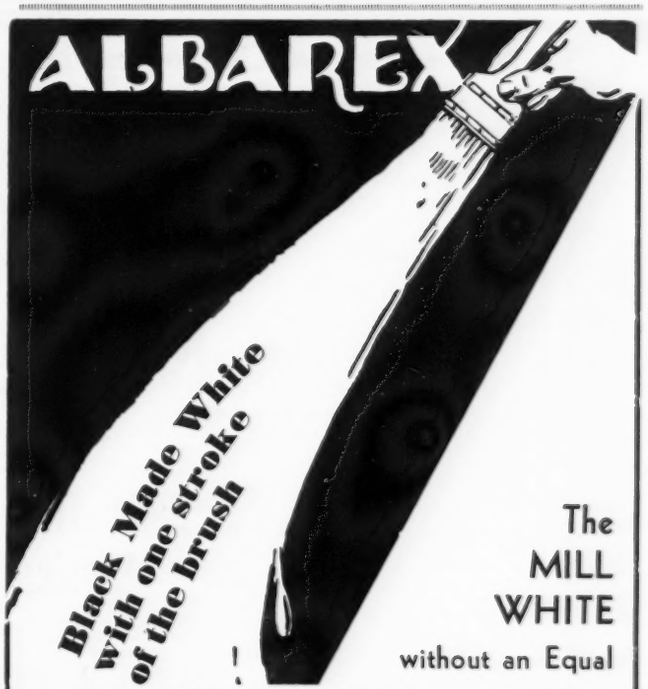

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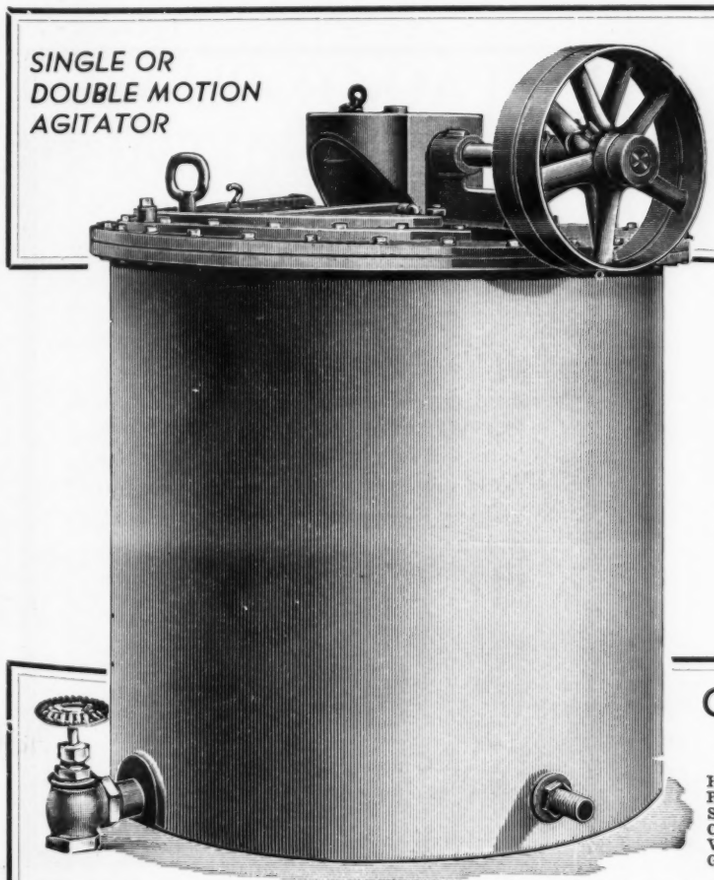

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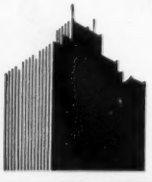

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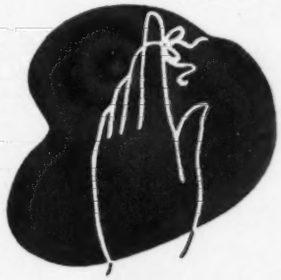

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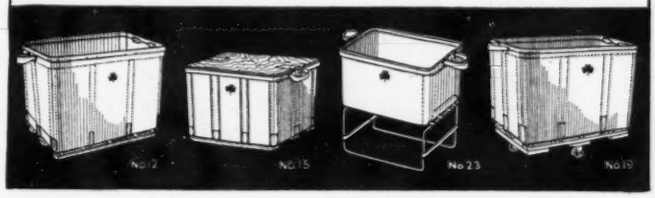

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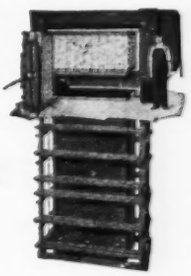

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Southern Sales Agents

The Terrell Machine Co., Inc.

Charlotte, North Carolina

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EMERGENCY PLAN

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LIFE INSURANCE CO.
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With METSO

BACK GRAYS LAST LONGER

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QUICK-ACTING Metso in 2 minutes removes more dye from back grays than other alkalies, and the cloth is left soft and absorbent.

Metso's high active alkali content loosens more dirt—yet has a restraining influence that preserves tensile strength.

Increase the life of back grays with Metso. And incidentally save money on your cleaner bill, too.

Samples and further information on request.

PHILADELPHIA QUARTZ COMPANY

General Offices and Laboratory: 125 S. Third St., Phila., Pa.
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SILICATES OF SODA

Henderson TEXTILE Parts Repair

THEY last longer because they are reinforced at the places where ordinary parts break.

They fit more accurately and operate more smoothly at higher speeds because they are made from precision patterns by expert workmen.

Write today for prices.

HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON, GEORGIA

"America's finest fabrics owe much of their perfection to the perfect quality of America's finest bobbins."

VIGILANCE

For thirty-nine years, the service of the Clover Leaf Organization to manufacturers of silk and synthetic yarns has been characterized by unceasing vigilance to assure greater speeds, higher perfection in fabrics and higher precision in manufacture.

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CLOVER LEAF MANUFACTURING COMPANY, HONESDALE, PENNA.
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Telephone HEmlock 4029

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Ralph E. Loper Co.

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Specialists in Textile Costs Over 25 Years

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THE PURE OIL CO.

PURE THREE POINT LUBRICATION

A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS

CHICAGO U.S.A.

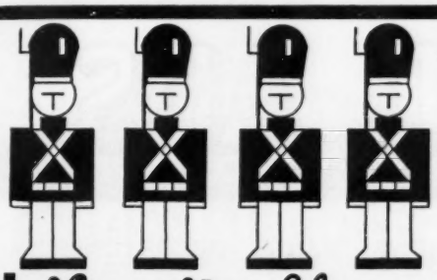
"CIRCULAR KNITTING PRACTICES"

is a new book telling how others meet many seamless problems.

This book is one of the most inclusive that has been written for the circular knitting trade. It has over 200 pages of practical interest to managers, superintendents, foremen, knitters, dyers, boarders and learners.

You can get this fine book—attractively bound in a heavy cover—and a three-year subscription to COTTON, 36 issues in all, for only $2.50. If you are already a subscriber, expiration date of your subscription will be advanced three years. Send in your subscription today or write for further information.

COTTON, Grant Bldg., ATLANTA, GA.



Uniformity *Always!*

----with Seyco Sizing

(Pronounced "SI-CO")

SEYCO SIZING has uniformity in each shipment and conformity with previous shipments. Careful selection of raw materials, scientific control of manufacture and grading of the finished product eliminates variations in performance.

This firm, with thirty-five years experience, is the largest manufacturer of Warp Sizing in the Southern Textile field. **Approximately 50,000,000 pounds of cloth are sized with SEYCO each month by our many regular customers.**

Warp Sizing
Softeners
Shuttle Dressing
Penetrants
Alkalis

SEYCO is packed in rustproof steel drums for protection and convenience. Every ounce available for use, and will keep indefinitely. **Ask for Demonstration!**

"A company is known by the customers it keeps"

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CREEL, TWISTER, AND WARP SPOOLS

SKEWERS

CLEARER BOARDS

SCAVENGER ROLLS

ETC.

The Terrell Machine Co., Inc.

Charlotte, North Carolina

Don't Pay Tribute

to TRESPASSERS
VANDALS
and
THIEVES

Every year industry pays a heavy penalty because of inadequate protection. Unfenced property encourages vandalism, trespass, invasion and loss. Insure yourself against this yearly tribute by surrounding your property with a Stewart Non-Climbable Chain Link Wire Fence . . . an unfailing barrier of steel that assures continuous, dependable protection. Investigate the outstanding superiorities of Stewart Industrial Fence. Send for catalog showing typical installations and exclusive features.

Sales and Erection Service in all principal cities.

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The STEWART IRON WORKS CO., Inc.
394 Stewart Block
Cincinnati . . . Ohio

Quicker! Cleaner! Lower Cost Pipe Cutting with this remarkable RIDGID Wheel-Blade Cutter . . .

Because every RIDGID tool is designed to save you bother and expense old-fashioned tools cause you, the millions of them now in use have saved billions of hours that used to be wasted.

That's true of this cutter. The thin bladed wheel — coined out of tool steel, hammered, heat-treated and assembled in a solid hub — has the extra stamina to keep on rolling readily cleanly through all kinds of pipe long after ordinary cutter wheels need replacing. And the housing is guaranteed warp-proof — always cuts true, twirls easily to your pipe size.

Try this tool of the smart buyer and the expert user. Save yourself time and expense with the RIDGID Cutter that gives you far more cuts per wheel-blade. Buy from your Jobber — now.

THE RIDGE TOOL CO., ELYRIA, O.

Makers of the Famous RIDGID *Wrench*

RIDGID PIPE TOOLS

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THEY last longer because they are reinforced at the places where ordinary parts break.

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You can get this fine book—attractively bound in a heavy cover—and a three-year subscription to COTTON, 36 issues in all, for only $2.50. If you are already a subscriber, expiration date of your subscription will be advanced three years. Send in your subscription today or write for further information.

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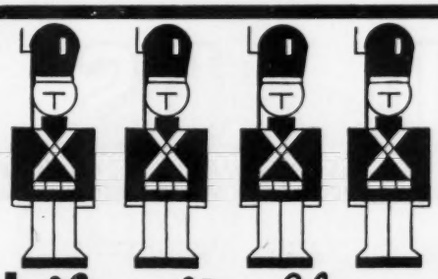

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THE RIDGE TOOL CO., ELYRIA, O.

Makers of the Famous RIDGID Wrench

RIDGID PIPE TOOLS

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Box number address care of COTTON, Grant Bldg., Atlanta, Ga., count as eight words.

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1—Saco-Lowell No. 4 Bale Breaker with 12 ft. start & stop feed regulator apron.
2—Saco-Lowell Vertical Openers with adjustable grid bars.
1—Saco-Lowell No. 12 Lattice Opener & Cleaner with No. 3 condenser.
1—Saco-Lowell No. 6 Condenser and No. 7 Sturtevant Fan.
1—Saco-Lowell 40" two-beater Breaker with 38" No. 5 Feeder.
2—Saco-Lowell 40" Finisher Pickers.
1—Saco-Lowell Card & Picker Waste Cleaner with thread extracting shaft, condenser and No. 5 24" Feeder.

CARD ROOM

24—Saco-Lowell 40" Cards, 12" coilers, 27" doffers, 100 and 110 wire.
60—Deliveries Saco-Lowell Drawing, 4 and 5 deliveries to the head, 12" coilers, metallic top rolls hank clocks.
3—Saco-Lowell 12 x 6 Slubbers, 72 spindles each, 10¼" gauge.
6—Saco-Lowell 10 x 5 Fly Frames, 108 spindles each, 8" gauge.

SPINNING & TWISTING

24—Saco-Lowell Spinning Frames, 252 spindles each, 3½" gauge, 2⅛" ring, tape drive, hank clocks.
3—Saco-Lowell Twisters, 144 spindles each, 4½" gauge, 3½" ring, tape drive, 4 ply creels, knee brakes, hank clocks.
4—Saco-Lowell Camless Winders, 16 spindles each.
40—Model 5 Universal Winders, 6 spindles each 4", 5" and 6" traverse.

MOTORS

40—Westinghouse 440 volt, 60 cycle, 3 phase motors with switches or starters, from 5 H.P. to 20 H.P. each.

Supplies for above unit include slubber, roving and spinning bobbins, 12" x 36" seamless roving cans, roving trucks, lap trucks, doffing trucks, card grinders, Toledo Lap Scale.

All the above machinery was installed new in 1921 or later.

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GEORGE F. LANGEVIN

SUN BUILDING LOWELL, MASS.

Send for a full descriptive pamphlet.

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For Rapid Liquidation of textile machinery or complete plants consult the S. B. Schwartz organization. We are the exclusive machinery suppliers to many large textile firms in Latin American countries. For that reason, our outlet for good, used American machinery is unexcelled. For years we have been engaged domestically in the appraisal, liquidation, purchase and sale of textile mill properties.

S. B. SCHWARTZ

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COTTON, Grant Bldg., ATLANTA, GA.

Paul B. Eaton

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514 Munsey Bldg., Washington, D. C.
Former Member Examining Corps
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Am available for superintendent or other key position in fancy mill Dobby or Jacquard work. Over 20 years' experience on creation and production of plain and fancy fabrics on automatic and non-automatic looms. Familiar with both northern and southern mills. Will go anywhere. Detailed information and references on request. Address Box 446, c/o COTTON, Grant Bldg., Atlanta, Ga.

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600 outside rooms, each with bath . . . cool terrace dining in warm weather . . . convenient parking and garage accommodations . . . popular prices throughout.

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More pounds per twister means less cost per pound—and that is one direct result of installing DIAMOND FINISH Auto-Lubricated rings. Their complete, automatic oil lubrication is giving mills substantially increased production on cotton and rayon work. They are also being used with good success on wool.

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DIAMOND FINISH
Makers of Spinning and Twister Rings since 1873

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At the Pomona Pump plants the policy is to employ only good men—adequately trained, provided with the best tools and machinery, surrounded by pleasant and healthful conditions and properly paid according to ability. Every encouragement is given to ambitious workers and advancement is made according to merit. The management believes in and does everything possible to maintain a happy family of satisfied employees. Under such conditions the best work is done.

Owners of Pomona Pumps enjoy the benefits of the expression of the high ideals of the good men at each of the Pomona plants — products that have won well-deserved world-wide leadership in agriculture, industries of all kinds, mines and municipal water service.

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Branch Offices: New York, Chicago, Los Angeles, San Francisco.

POMONA TURBINE PUMPS

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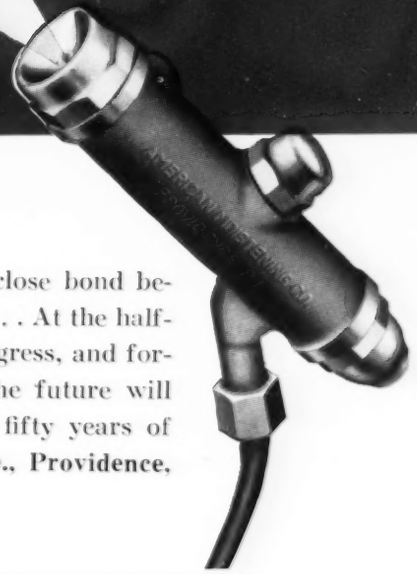

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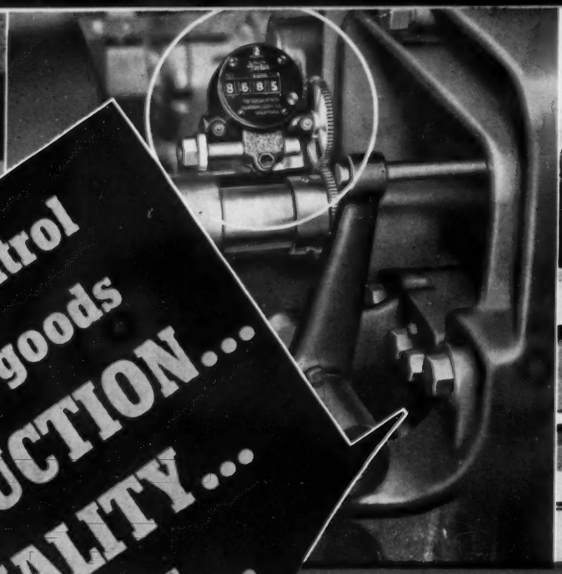
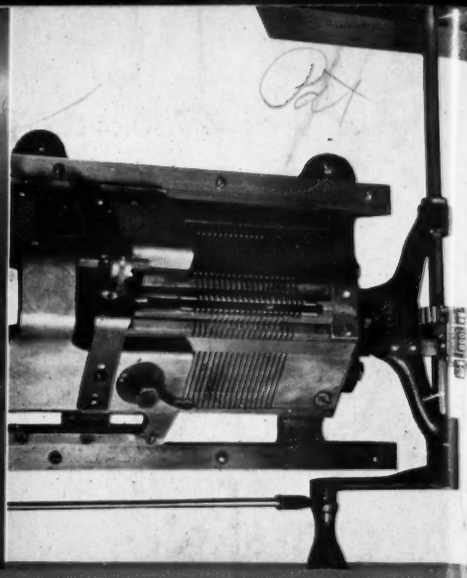
1888 1938

TAKE YOUR TEXTILE HUMIDIFICATION JOB TO THE TEXTILE HUMIDIFICATION SPECIALIST



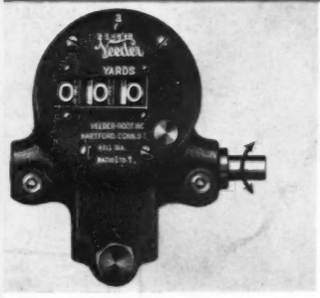


closer control of knit goods PRODUCTION... QUALITY... COST...

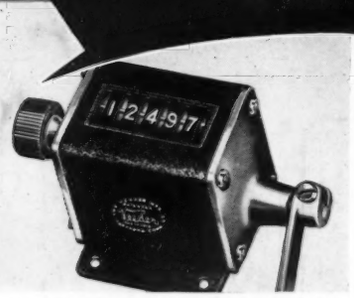
Medium Size Counter on circular machine, with knurled wheel running on material, recording in feet.

Loom-Type Heavy Duty Counter recording racks on flat machine. Spur-geared to main drive shaft.

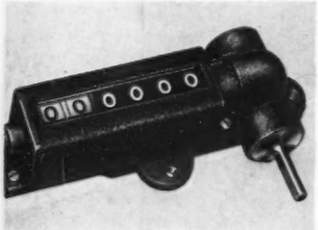
Small Reset Revolution Counter recording courses on glove machine. Geared to main shaft.



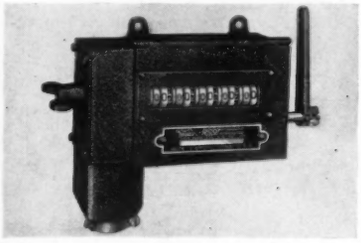
oom-Type Heavy Duty Counter records courses or rounds, eared to shaft of take-up roll.



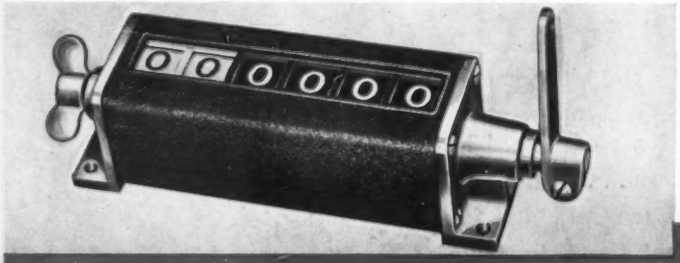
Small Reset Counter registers revolutions with shaft turning in either direction.



Worm Driven Reset Counter can be geared to register accurately for practically any size roll. Measures in any unit you desire.



Predetermining Counter, when used with a stop-mechanism will stop machine at run for which predetermining figures were set.



Medium Size Counter registers revolutions. May be furnished with friction wheel, as in illustration above at left.

WITH

Veeder-Root

KNITTING MACHINE COUNTERS

ON CIRCULAR KNITTING MACHINES, efficiency increases greatly on straight run material . . . when production is checked against *a record of revolutions of the needle ring,* provided by Veeder-Root Counters. Overseer can properly group the number of machines per operator. More constant rate of production can be maintained, likewise a quicker check on efficiency and cutting of rolls to number of courses instead of pounds. Yards can be checked against pounds to ascertain closer tension, course-per-inch adjustments, yarn weights. Direct cost factors and wage-schedule bases can be obtained. Veeder-Root Counters provide permanently accurate records.

ON FLAT KNITTING MACHINES, Veeder-Root Counters can be geared to record racks, or racks and tenths. Constant records provide a check for quality, to permit more accurate tension adjustments and the cutting of rolls to a definite number of racks.

ON GLOVE MACHINES, Veeder-Root Counters record number of courses knitted in each finger, help produce fingers of proper length. Guesswork and mental counts are eliminated. Production is improved.

VEEDER-ROOT KNITTING MACHINE COUNTERS are part of the complete line of Veeder-Root Pick, Hank, and Lineal Measuring Counters.

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